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A MARKETING PLAN FOR ENERGY OUTREACH ACTIVITIES

Prepared for

MONTANA DEPARTMENT of NATURAL RESOURCES and CONSERVATION

A MARKETING PLAN FOR ENERGY OUTREACH ACTIVITIES

Prepared by

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May, 1983

Prepared for

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TABLE OF CONTENTS

Page

ACKNOWLEDGEMENTS..... i

LIST OF TABLES..... v

EXECUTIVE SUMMARY.....viii

I. INTRODUCTION..... 1

II. METHODOLOGY..... 3

2.1 Development of the Questionnaire..... 4

2.2 Pretesting..... 6

2.3 Target Groups..... 6

2.3.1 General Public..... 7

2.3.2 Farmers and Ranchers..... 8

2.3.3 Large Businesses..... 8

2.3.4 Small Businesses..... 9

2.3.5 Builders..... 9

2.3.6 Architects..... 9

2.3.7 Lenders..... 10

2.3.8 Appraisers..... 10

2.3.9 Realtors..... 11

2.4 Analysis of the Data..... 11

2.4.1 Coding, Editing, and Automation of Data..... 11

2.4.1.1 Mail-Out Surveys..... 11

2.4.1.2 Telephone Surveys..... 13

2.4.2 Tabulating and Summarizing..... 14

Page

2.4.3 Inferences..... 16

2.4.3.1 Estimation..... 16
2.4.3.2 Variable Relationships 19

2.4.4 Analysis of Nonresponse..... 21

III. RESULTS..... 23

3.1 General Public..... 24

3.2 Farmers and Ranchers..... 30

3.3 Large Businesses..... 34

3.4 Small Businesses..... 37

3.5 Builders..... 41

3.6 Architects..... 44

3.7 Lenders..... 48

3.8 Appraisers..... 50

3.9 Realtors..... 54

IV. MARKETING PLAN..... 58

4.1 General Public..... 59

4.1.1 Marketing Focus..... 59
4.1.2 Suggested Marketing Approach... 60

4.2 Farmers and Ranchers..... 61

4.2.1 Marketing Focus..... 61
4.2.2. Suggested Marketing Approach... 63

4.3 Large Businesses..... 63

4.3.1 Marketing Focus..... 63
4.3.2 Suggested Marketing Approach... 64

4.4 Small Businesses..... 65

4.4.1 Marketing Focus..... 65
4.4.2 Suggested Marketing Approach... 66

Page

4.5 Builders..... 67

4.5.1 Marketing Focus..... 67
4.5.2 Suggested Marketing Approach... 68

4.6 Architects..... 70

4.6.1 Marketing Focus..... 70
4.6.2 Suggested Marketing Approach... 70

4.7 Lenders..... 71

4.7.1 Marketing Focus..... 71
4.7.2 Suggested Marketing Approach... 71

4.8 Appraisers..... 72

4.8.1 Marketing Focus..... 72
4.8.2 Suggested Marketing Approach... 72

4.9 Realtors..... 73

4.9.1 Marketing Focus..... 73
4.9.2 Suggested Marketing Approach... 73

BIBLIOGRAPHY..... 74

APPENDIX A

1. Questionnaire Cover Letters
2. Postcard Reminder

APPENDIX B

1. Summary of Results
2. Questionnaires
3. Survey Histograms

APPENDIX C

1. Sampling Definitions

LIST OF TABLES

Page

TABLE 1 SURVEY AUTOMATION SUMMARY..... 15

TABLE 2 PLANNING DISTRICTS RESPONSE RATE..... 17

TABLE 3 PLANNING DISTRICTS/COUNTIES IN MONTANA..... 18

TABLE 4 MAXIMUM 95% CONFIDENCE INTERVALS..... 20

General Public

TABLE 5 RANKING OF ENERGY MEASURES IMPLEMENTED..... 25

TABLE 6 CROSS-TABULATIONS OF ENERGY TECHNOLOGY AWARENESS VERSUS ACTION... 26

TABLE 7 RANKING OF SOURCES/DELIVERY OF ENERGY INFORMATION..... 27

TABLE 8 CROSS-TABULATIONS OF PLANNING DISTRICT AND PUBLIC ENERGY EDUCATION/ENERGY CONSERVATION PROGRAM..... 29

Farmers and Ranchers

TABLE 9 AWARENESS AND IMPLEMENTATION OF ALTERNATIVE ENERGY PRODUCTION TECHNOLOGIES..... 31

TABLE 10 AWARENESS AND IMPLEMENTATION OF CONSERVATION OR RENEWABLE ENERGY TECHNOLOGIES..... 32

TABLE 11 RANKING OF SOURCES/DELIVERY OF ENERGY INFORMATION..... 33

Large Businesses

TABLE 12 IMPLEMENTATION OF ENERGY CONSERVATION MEASURES..... 35

TABLE 13 RANKING OF SOURCES/DELIVERY OF ENERGY MEASURES..... 36

Page

Small Businesses

TABLE 14 AWARENESS OF ENERGY CONSERVATION MEASURES..... 38

TABLE 15 IMPLEMENTATION OF ENERGY CONSERVATION MEASURES..... 39

TABLE 16 RANKING OF SOURCES/DELIVERY OF ENERGY INFORMATION..... 40

Builders

TABLE 17 AWARENESS AND IMPLEMENTATION OF ENERGY CONSERVATION BUILDING/DESIGN TECHNIQUES, MATERIALS, AND PRODUCTS..... 41

TABLE 18 EXTENT THAT BUILDING/DESIGN TECHNIQUES, MATERIALS, OR PRODUCTS ENHANCE THE SALABILITY OF BUILDINGS OR STRUCTURES..... 42

TABLE 19 RANKING OF SOURCES/DELIVERY OF ENERGY INFORMATION..... 43

Architects

TABLE 20 AWARENESS OF ENERGY CONSERVATION TECHNIQUES, MATERIALS, OR PRODUCTS..... 44

TABLE 21 IMPLEMENTATION OF ENERGY CONSERVATION TECHNIQUES, MATERIALS, OR PRODUCTS..... 45

TABLE 22 EXTENT THAT BUILDING/DESIGN TECHNIQUES, MATERIALS, OR PRODUCTS ENHANCE THE SALABILITY OF BUILDINGS OR STRUCTURES..... 46

TABLE 23 RANKING OF SOURCES/DELIVERY OF ENERGY INFORMATION..... 47

Lenders

TABLE 24 RANKING OF SOURCES/DELIVERY OF ENERGY INFORMATION..... 50

Appraisers

Page

TABLE 25 EXTENT THAT BUILDING/DESIGN TECHNIQUES, MATERIALS, OR PRODUCTS INCREASE PROPERTY VALUES..... 51

TABLE 26 RANKING OF SOURCES/DELIVERY OF ENERGY INFORMATION..... 53

TABLE 27 EXTENT THAT BUILDING/DESIGN TECHNIQUES, MATERIALS, OR PRODUCTS ENHANCE THE SALABILITY OF HOMES..... 56

TABLE 28 RANKING OF SOURCES/DELIVERY OF ENERGY INFORMATION..... 57

EXECUTIVE SUMMARY

Nine different public sectors (i.e., target groups) were surveyed, including the general public, farmers and ranchers, large businesses, small businesses, builders, architects, lenders, appraisers, and realtors. Some of the survey questions were highly specialized and were administered to only one or two groups. Other questions were quite general and responses were obtained from all nine groups. This report identifies some of the important similarities and differences in the responses obtained from the various groups surveyed, and suggests an effective market strategy to target information, education, and outreach activities for renewables and conservation.

Energy conservation measures identified through the use of energy audits have received considerable publicity. The general public and small businesspersons indicated only a mild degree of interest in energy audits and fewer than 15 percent have actually had an energy audit conducted at their home or place of business. Large businesses exhibited a considerably greater interest in energy audits with nearly 40 percent having such an examination conducted at their physical plant.

The use of certain energy conservation measures seemed to predominate in all groups surveyed. Generally, these were the simpler low-technology efforts such as installing insulation

and weatherstripping, increasing or decreasing thermostat settings to obtain energy savings, and installing multiple-pane windows. These familiarity and use levels ranged from 40 percent to 95 percent. Energy conservation techniques based on higher levels of technology such as solar heating, air-to-air heat exchangers, super insulation, double envelope construction, and computer heating controls are largely unfamiliar to Montanans and their use levels are generally below 15 percent. Similarly, farmers and ranchers are most interested and involved in simpler conservation and alternative energy production techniques.

Builders and architects are most familiar with the simplest energy conservation techniques such as adequate insulation, multiple-pane windows, energy-efficient appliances, and passive solar heating. These construction techniques are also the least expensive and, with the exception of energy-efficient appliances, they are viewed by realtors and appraisers as being those measures which make the greatest contribution to the salability of the completed structure. The survey data indicate that the builders and architects respond to consumer interest in energy conservation techniques and that full utilization of energy-efficient construction will only occur when the consumer makes the demand.

There is a widespread interest in attending workshops and professional meetings specifically related to energy conservation

and renewable energy sources. Well over 80 percent of the respondents endorsed this means of increasing Montanans' knowledge. Approximately 45 percent of the respondents, except the general public, envisioned that the participants should pay for energy-related workshops, 25 percent thought utility companies should pay and 10 percent expected governmental agencies to provide the funds. The remaining 20 percent spread the costs of these workshops to more than one source. The primary difference in this pattern of the general public was that only 20 percent were willing to pay for energy education and 35 percent expected the utility companies to be financially responsible. In the case of architects, only 5 percent thought that utility companies should pay the costs and 70 percent thought that the participants should pay.

There was uniformly wide endorsement for the concept of a home energy rating system similar to the EPA automobile miles-per-gallon system. On the average, 55 percent of the realtors, appraisers, lenders, architects, and builders endorsed this concept. Strongest support came from the builders with 60 percent endorsement.

People in Montana have obtained information concerning conservation and renewable energy from several sources, however, magazines were identified by over 80 percent as an important and useful source of information. Television and newspapers

were also noted as important sources of information. In the case of architects and appraisers, professional publications were clearly the most important source of information being thus identified by 97 percent of the respondents. Professional publications were an important information source for realtors as well. In the case of farmers and ranchers, the Montana Farmer-Stockman was easily identified as the most important source from which they obtained information on energy conservation.

In conclusion, it is evident from this survey that there is an interest in energy conservation and in alternative energy sources throughout portions of the population in Montana. Use of the appropriate technologies is in its infancy and has the potential to increase as readily as the public can be fully informed of the advantages and possible direct cost benefits. The public is willing to become educated on energy concepts through news media and would apparently be willing to participate in workshops and share the cost of special workshops and training sessions.

I. INTRODUCTION

Increasing energy costs and concern over declining reserves of fossil fuels have motivated Montanans to consider utilizing energy conservation and renewable resources. Although many citizens are interested in employing renewable energy sources, they are often unaware of cost effective options. A public opinion survey in 1978 indicated that the lack of educational and informational material had been one of the greatest obstacles to implementation of renewable energy in Montana.[1] In 1975, the Montana Legislature enacted Senate Bill 86, which established the Montana Alternative Renewable Energy Sources Program.[2] The Energy Planning Division of the Montana Department of Natural Resources and Conservation (DNRC) was charged with the administration of grants to Montana residents for projects that would research, develop, and demonstrate the use of renewable energy production. The emphasis of the Program

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[1] Jan Konigsberg, The Montana Solar Public Opinion Survey, Results and Analysis of the Montana Solar Questionnaire, Montana Department of Natural Resources and Conservation (May 1978).

[2] Senate Bill 86 states... Purpose. The purposes of this act are to stimulate research, development, and demonstration of energy sources which are harmonious with ecological stability by virtue of being renewable, thereby to lessen that reliance on nonrenewable energy sources which conflicts with the goal of long-range ecological stability, and to provide funding and administration of such research, provided, that demonstration or development projects funded under this act may not be used to commercially market electricity, heat energy, or energy by-products.

was to seek ways to reduce Montana's reliance on nonrenewable energy. The DNRC has provided over 200 renewable energy grants for research, development and demonstrations, and has developed a low interest loan program to assist in the commercial application of renewable energy.

The DNRC has acquired a substantial collection of renewable energy books, publications, and research papers. Although there has been a concerted effort to synthesize and distribute this information, only a small portion of Montana's population has received such material. The present study has been designed to collect survey data on the knowledge of and attitudes toward conservation and renewable energy. This information will assist the DNRC in effectively targeting and communicating to various population segments specific information that will result in increased conservation and renewable energy use.

This report discusses the methods used to conduct the survey as well as the statistical tests employed to analyze and interpret the data. Results and recommendations are presented forming the basis for an effective strategy to target information, education, and outreach activities for renewables and conservation.

II. METHODOLOGY

The methods used to design, conduct, and interpret the results of this survey are based on accepted survey and statistical techniques (Dillman 1978; Simon 1978; Mueller et al. 1970; Erdos et al. 1970; Tull et al. 1973). Through literature review of pertinent studies and consultation with the DNRC staff, we were able to more specifically focus on the project objectives.

It was believed essential to survey a broad range of individuals in various occupations and geographic areas in order to effectively identify which population segments ("target groups") would benefit most from future DNRC conservation and renewable energy outreach activities. For each target group, the survey was designed to determine:

1) The level of awareness of energy technologies/ programs.
2) The specific energy technologies each target group has used.
3) The sources from which the target groups have acquired information about conservation and renewable energy.
4) The communicative methods believed to be the most helpful in learning about conservation or renewable energy.

2.1 Development of the Questionnaire

The first phase of the survey focused on determining the appropriate data-gathering method (i.e., personal interviews, telephone interviewing, or mail surveys). After reviewing the literature on the advantages and disadvantages associated with each method, it was decided that the mail survey would be the primary type of instrument used.

The appearance, organization, content, and length of the mail questionnaire are important since these factors influence whether the respondent will react positively and complete the questionnaire as requested or discard it due to confusion, antagonism, or lack of interest. In using a mail questionnaire, there is no opportunity for an interviewer to obtain respondent cooperation or explain question meanings; consequently, the design of the questionnaire becomes critical to the success of the survey.

Dillman (1978) reported that one of the most important requirements for a successful survey design is that the questionnaire should create a feeling of personal communication between the researcher and the respondent. A personalized approach conveys to the respondent the critical message that the study is important and that the respondent's participation is necessary for success of the survey.

One method to personalize a survey is through a support letter on the front of the questionnaire (see Appendix A). The support letter was signed by a notable person in each target group, stressed the value and overall importance of the survey, and requested that the respondent please take the time to complete and return the questionnaire. In addition to the support letter, a cover letter (see Appendix A) from the DNRC was enclosed which explained the overall nature and usefulness of the study while assuring the respondent of confidentiality. This cover letter was individually signed as another means to introduce a personal "touch" to the survey.

The survey respondent was further encouraged to participate personally in the study by writing additional comments on the back of the questionnaire, and was also given the opportunity to request a copy of the results of the survey. Keeping the respondent's anonymity in mind, the respondent was asked to write their name and address on the back of the return envelope and not on the questionnaire.

Although personalization was an important objective, other practical considerations were included in the survey process. For example, the survey packet contained a preaddressed, postage-paid return envelope which reminded the respondent that it would not cost any money or inconvience to return the questionnaire. Most importantly the actual instrument was kept as

concise as possible to give the appearance that the questionnaire was easy to complete.

2.2 Pretesting

Even though a survey has been carefully designed, it is not always possible to predict how various groups will respond; therefore, pretesting is a necessary element in evaluating, modifying, and improving the final questionnaire. Pretesting allows the researcher to identify such problems as respondent's confusion about the meaning of questions or the inability of respondents to answer within the confines of the categories that are provided.

A mock-up of each questionnaire was developed and pretested by asking individuals representative of each target group to complete the questionnaire and to make criticisms. As another means of pretesting, the questionnaire was critiqued by other individuals who understood the purpose of the study (e.g., DNRC personnel, colleagues). Revisions in the survey were then made to reflect various problems and/or criticisms (see Appendix B for survey questionnaires).

2.3 Target Groups

The DNRC initially identified five groups (1) farmers and ranchers, 2) builders and architects, 3) lenders, appraisers, and realtors, 4) private businesses, and 5) the general

public) as potential target audiences for energy outreach activities. In order to more precisely measure the awareness of and attitude toward energy conservation and renewable technologies, these five initial groups were further divided into the following categories:

1) General Public
2) Farmers and Ranchers
3) Large Businesses
4) Small Businesses
5) Builders
6) Architects
7) Lenders
8) Appraisers
9) Realtors

The following sections briefly describe the sampling design for each target group.

2.3.1 General Public

The general public survey was conducted through telephone interviews. A sample of 601 telephone calls was completed using a variation of a systematic sampling technique known as random digit dialing. In this study, telephone books were used to select potential interviewees. The interviewer

picked the telephone number at the top of the fourth column of each page and added a constant number of ten (10) to that base telephone number. For example, if the number at the top of the fourth column were 445-2881, the number dialed would be 445-2891. Random digit dialing ensures randomness in the samling list and allows unlisted and newly connected telephones to be included in the sample. The greatest limitation of a telephone survey is the restriction to individuals who can be reached by telephone; however, the high response rate and the absence of a good general public mailing list outweigh this limitation.

2.3.2 Farmers and Ranchers

A mail survey was used to collect data from Montana farmers and ranchers. On November 18, 1982, questionnaires were mailed to 2,469 Montanans who owned farms or ranches of 100 acres or more. On November 26, 1982, a postcard reminder was sent to everyone in the first mailing, serving as both a thank-you for those who had responded and as a courteous reminder for those who had not responded.[3]

2.3.3 Large Businesses

Initially, personal interviews were to be conducted with 50 of the largest Montana businesses (over 50 employees). The

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[3] Don A. Dillman. Mail and Telephone Surveys, The Total Design Method (New York: John Wiley & Sons, 1978).

remaining sample was to be surveyed by using a combination telephone/mail method; however, after the pretest, it was decided that the best results could be achieved by collecting all data through telephone interviews. A total of 201 interviews were completed during the month of January 1983.

2.3.4 Small Businesses

A mail-out questionnaire was sent to 1,218 small (less than 50 employees) Montana businesses on December 3, 1982. The sample was selected by the random systematic sampling method (see Appendix C) from a population of approximately 23,000 Montana businesses. Because the return response rate was so high, a reminder postcard mailing was not necessary.

2.3.5 Builders

Builders originally were to be divided into two separate categories (small firms and public contractors); however, as a result of duplication in the available mail lists, these two categories were combined into one mail survey. A total of 713 questionnaires were sent to Montana builders. The sample was drawn from telephone books, building permit data, and a list of licensed public contractors. The first mailing was done on January 14, 1983, and postcard reminders were sent on January 24, 1983.

2.3.6 Architects

A systematic random sampling process was employed to draw a

sample of 272 Montana architects and 111 out-of-state architects who are licensed to do business in Montana. The first mailing took place on January 10, 1983, with a follow-up mailing (i.e., reminder postcard) on January 20, 1983.

2.3.7 Lenders

The lenders group comprises three different types of lending institutions--banks, savings and loan associations, and credit unions. A sample was not drawn for this group since the total number of lending institutions was so small that a sample would probably not be representative of the universe.

A survey packet was mailed January 12, 1983, to the presidents of 176 banks, 13 savings and loan institutions, and 120 credit unions, requesting them to distribute a questionnaire to each (up to three) of their loan officers. Loan officers were chosen to complete the questionnaire because it was thought they would be most acquainted with energy issues. To ensure a higher return response rate, a postcard reminder was mailed to all the lending institutions on January 24, 1983.

2.3.8 Appraisers

The Montana appraisers list consisted of only 90 firms; therefore, the entire list of names was used for the mail-out. The first mailing was conducted on January 5, 1983, and the reminder postcard issued on January 17, 1983.

2.3.9 Realtors

A total of 546 questionnaires were mailed to Montana real estate brokers and salespersons on January 5, 1983, with a reminder postcard follow-up on January 7, 1983. Systematic random sampling was used to draw a sample from a population of approximately 3,700 realtors and brokers.

2.4 Analysis of the Data

This section reviews the process of automating, tabulating, and interpreting the survey results. Because data analysis represents the end of the survey process (short of the final report), everything done prior to this point had been accomplished for the sole purpose of the analysis. For example, the design of the questionnaire included printing the form in brown ink so when the response was written in black or blue ink (or even in pencil), it would be more legible for data keying. Furthermore, categories for most questions were limited to three possible responses so that given the expected response rate, cross-tabulation would be more meaningful. All of these measures were taken to facilitate the process of data analysis.

2.4.1 Coding, Editing, and Automation of Data

2.4.1.1 Mail-out Surveys. After the mail-out questionnaires were designed and pretested, they were sent from the Helena Post Office to the respondents under a 3rd class bulk mailing permit. The return envelopes were addressed to the Statistical

Center at Montana State University in Bozeman where the return questionnaires were numbered and sorted by survey (e.g., small businesses, lenders, builders). A record was maintained for those respondents who had requested summaries of the study.

The questionnaire for each of the mail-out surveys was designed for efficient automation by placing a column identifier next to each possible answer. In cases where multiple responses were possible, special coding instructions were provided. For example, most surveys asked the respondents "Who should pay for planned energy conservation workshops?" The responses included (1) federal government, (2) state government, (3) public utilities, or (4) individuals. If a respondent marked the form (1) and (2), a code of (5) was assigned. If the respondent marked the form (1), (2), and (3), a code of (6) was assigned, and so forth. Coding is explained in greater detail in the computer printout attachment to this report.

The coding for returned mail-out forms with no answers (no responses) was left blank and was recorded as a zero on the computer printout. A code of 9 generally meant that the respondent answered the question, but with a response not on the form (e.g., "I don't know"). In the analysis of the data, both zeros and nines were counted as missing data.

In some cases, the respondents answered questions they were not

required to answer. For example, on Question 6 of the builders survey ("Are you involved in marketing or selling the buildings or homes you build or design?"), if the question was answered "no," they were not required to answer Question 7. This apparently confused some of the respondents since they marked "no" on Question 6 and "no" on some of the answers to Question 7. This did not affect the "yes" responses, therefore, the "no" responses were left as marked and tabulated as such.

The keying and verifying of the data was accomplished using a preformatted record and a word processor on a micro computer. Once all data was keyed and verified, it was transferred to the main frame (Honeywell) computer at Montana State University for processing.

2.4.1.2 Telephone Surveys. Both telephone surveys (general public and large businesses) were conducted at the Statistical Center at Montana State University. The interviews were made from one survey form and coded onto a form that included the telephone number, a 3-digit form identifier, and columns for each of the possible responses. Because some of the responses included ones and zeros, a 9 was used to indicate no response. Further coding included multiple response data. For example, on Question 34 of the general public survey, codes 5 through 8 indicate possible multiple responses (see the General Public Survey in computer printout attachment).

Like the mail-out survey, after all interviews had been conducted, the data were keyed and verified onto a preformatted record using a micro computer and a word processor. The data was then transmitted to the main frame computer (Honeywell) at Montana State University for analysis.

Table 1 summarizes the automation process for all surveys. Only one record (farmers and ranchers survey) in all of the surveys was deleted. This record was eliminated because many of the answers were coded wrong by the respondent. Column four (key field) of Table 1 contains information necessary to relate the actual survey record to the automated computer record (i.e., form number). The location is the column numbers with each automated survey that contains the index.

2.4.2 Tabulating and Summarizing

After automating the data, a statistical computer package (SPSS) was used to generate frequency distributions, histograms, and descriptive statistics for each of the survey categories. The output from each of these computer runs can be found in the computer printout attachment to this report.

Once the survey data had been tabulated, further editing and outlier analyses were performed on those categories that had responses which were not in the predefined range. The data were then changed if it appeared there was a keypunching error. The data were counted as missing if the values were

TABLE 1

SURVEY AUTOMATION SUMMARY

Location: Montana State University

Survey	Data File Name	Record Length	# of Records	Key Field	SPSS Control Datasets	Freq Dist Datasets	Cross-Tab Datasets
General Public	PUBLIC	72	601	70-72	SPSSCON1	SPSSPU	CTPU1, CTPU2, CTPU3
Agriculture	AGRI	51	1017	49-51	SPSSCON2	SPSSAG	CTAG1, CTAG2, CTAG3, CTAG4
Large Business	BUS	63	201	58-60	SPSSCON4	SPSSLB	CTLB1
Small Business	SMBUS	60	429	58-60	SPSSCON3	SPSSSB	CTSB1, CTSB2
Lenders	BANKS	37	347	35-37	SPSSCON9	SPSSBA	CTBA1
Appraisers	APPRS	37	45	35-37	SPSSCON5	SPSSAP	CTAP1
Builders	MHBA	86	256	84-86	SPSSCON7	SPSSMH	CTMH1, CTMH2
Architects	ARCH	86	224	84-86	SPSSCON8	SPSSAR	CTAR1, CTAR2
Realtors	REAL	47	233	45-47	SPSSCON6	SPSSRE	CTRE1

not identifiable. The tabulation and histograms for each survey can be found in Appendix B and the computer printout attachment to to this report. Descriptive statistics (measure of control tendency and variation) also can be found in the computer printout attachment to this report.

A further breakdown of the general public survey into geographic areas (i.e., planning districts) was accomplished by writing a computer program to cross-reference telephone prefix codes and county codes. The county codes were then aggregated into the 12 planning districts used by the Montana Department of Commerce. Descriptive statistics and cross-tabulations for each of the questions were then generated for each district. Table 2 provides a comparison of survey response rates and the 1980 population distribution by district. While the survey was not designed to draw statistically significant inferences from these districts, these estimates can certainly be used for future marketing activities.

2.4.3 Inferences

2.4.3.1 Estimation. This study was primarily concerned with determining the proportion of the population which answered in a particular way. In general, the procedure used to estimate population proportions is quite simple. Each population (e.g., general public, farmers and ranchers, small businesses) was sampled and an estimate of the population proportion was made on the basis of the proportion in the sample.

TABLE 2

PLANNING DISTRICTS RESPONSE RATE

Planning District*	1980 Population		Survey Responses	
	Population	Percent	Number	Percent
1	34,333	4.3	33	5.5
2	31,718	4.0	21	3.5
3	32,071	4.1	29	4.8
4	27,313	3.5	22	3.7
5	116,197	14.8	111	18.5
6	24,190	3.1	15	2.5
7	136,319**	17.3	118	19.6
8	53,335	6.8	38	6.3
9	57,679	7.3	47	7.8
10	97,449	12.4	49	8.2
11	102,184	13.0	50	8.3
12	73,902	9.4	68	11.3
TOTAL	786,690	100.0	601	100.0

* See Table 3 for district breakdown

**Includes population of Yellowstone National Park

TABLE 3

PLANNING DISTRICTS/COUNTIES IN MONTANA

Planning District	Counties
1	Daniels, Phillips, Roosevelt, Sheridan, Valley
2	Dawson, Garfield, McCone, Prairie, Richland, Wibaux
3	Carter, Custer, Fallon, Powder River, Rosebud, Treasure
4	Blaine, Hill, Liberty
5	Cascade, Choteau, Glacier, Pondera, Teton, Toole
6	Fergus, Golden Valley, Judith Basin, Musselshell, Petroleum, Wheatland
7	Big Horn, Carbon, Stillwater, Sweet Grass, Yellowstone, Yellowstone National Park
8	Broadwater, Jefferson, Lewis & Clark
9	Gallatin, Meagher, Park
10	Flathead, Lake, Lincoln, Sanders
11	Mineral, Missoula, Ravalli
12	Beaverhead, Deer Lodge, Granite, Madison, Powell, Silver Bow

These estimates are accurate only to the extent that the non-sampling errors (respondent refusals, inability to contact all respondents, imperfections in questionnaire design) have been minimized and that the sample is representative of the true population. It is often more useful to give estimates of population proportions in terms of a range of values. This range (confidence interval) designates an interval within which the true population proportion will lie in a determined percentage of all possible cases. Table 4 illustrates the maximum length of confidence intervals for any proportion from the populations surveyed. The maximum standard error is determined by assuming the true population proportions are equal to .5 which is the value that maximizes the standard error.

2.4.3.2 Variable Relationships. After examining the distribution of each of the variables, sets of relationships among two or more variables were investigated. These relationships were analyzed using contingency table analysis (cross-tabulations or joint frequency distributions). The cross-tabulation analysis not only yields frequency distribution estimates, but also provides statistics designed to measure whether or not the variables are statistically independent. Furthermore, measures are given from the computer output which describe the degree to which the values of one variable are related or are independent of the values for the second variable (e.g., Chi Square).

TABLE 4

MAXIMUM 95% CONFIDENCE INTERVALS

Survey	Population Size	Sample Size	Responses	Type of Sampling	Maximum Standard Error (95%)	95% * Confidence Intervals Proportion
General Public	780,000	601	601	Phone - Systematic	.020	±.045%
Farmers and Ranchers	23,000	2,469	1,017	Mail - Systematic	.015	±.034%
Small Business	23,000	1,218	429	Mail - Systematic	.024	±.051%
Large Business	750	201	201	Phone - Systematic	.026	±.056%
Lenders	(est.) 915	915	347	Mail - Systematic Cluster	.017	±.038%
Appraisers	90	90	45	Mail - 100%	.037	±.078%
Realtors	1,700	546	233	Mail - Systematic	.028	±.060%
Builders	713	713	256	Mail - Systematic	.020	±.044%
Architects	750	383	224	Mail - Systematic	.023	±.051%

*As an example, if the proportional estimate for some response is 47% then our 95% confidence interval for P (the true proportion) is given by:

$$(42.5\% \leq P \leq 51.5\%)$$

For each survey, cross-tabulations were run on variables identified by the DNRC staff. The output from this analysis can be found in the computer printout attachment to this report.

2.4.4 Analysis of Nonresponse

A problem of nonresponse did not exist with either of the telephone surveys (general public and large businesses). In each of these telephone surveys the actual response rate for persons contacted exceeded 90 percent. In the cities of Billings and Miles City there had been recent news articles concerning telephone scams, consequently, there was a skepticism and reluctance to be interviewed. Only rarely was an interview terminated after it had successfully begun. In the general public telephone survey, utilization of random digit dialing allowed quite a few unlisted and newly installed numbers to be reached and, in most instances, the people cooperated in completing the survey.

In the large business telephone survey, over 90 percent of the firms originally listed completed the survey. Most unsuccessful calls were due to a termination of business activities and only occasionally were uncooperative individuals reached. Consequently, nonresponse was not a factor in either of these telephone surveys.

The remaining sectors of the public (i.e., target groups) were surveyed with a postal questionnaire mailed to names obtained from various governmental and private agencies. These mailing

lists were considered confidential, therefore, it was not possible to identify individuals who had or had not responded. In most cases a postcard reminder was mailed approximately 10 days after the original questionnaire to improve the response rate. The very nature of the subject matter elicited a large number of responses and there were essentially no emotional or distraught completions. The range of the overall response rate was: 36 percent for small businesses and builders, 38 percent for lenders, 41 percent for farmers and ranchers, 47 percent for realtors, 50 percent for appraisers, and 58 percent for architects. These response rates are exceptionally good. In many surveys a response of 20 percent is considered average and response rates as low as 10 percent are not uncommon. In the case of farmers and ranchers, small businesses, and builders, a number of questionnaires were returned with an indication that the respondent was no longer engaged in that activity. Undoubtedly, there were even greater numbers of individuals in those activities who were no longer practicing that occupation and hence did not respond.

In summary, based on the information available, there is no reason to believe that nonrespondents had any different views to express than did those who responded. In any case, there was no possibility to conduct a standard statistical follow-up subsurvey of nonrespondents because of the confidentiality of the mailing lists. However, there is no reason to suspect that a nonresponse bias exists.

III. RESULTS

The primary purpose of this study was to gather necessary background data on public attitudes in order to provide the DNRC with an effective means of communicating energy conservation and renewable energy information to Montanans. In order to accomplish this goal, the various surveys were aimed at specific market segments (i.e., target groups). Although each survey was designed with the unique requirements of each target group in mind, all the surveys had the same underlying purpose to determine:

1) Current knowledge of energy programs and technologies.
2) Actual use (or plans to utilize) of specific energy technologies.
3) Attitudes toward the cost effectiveness of various energy technologies.
4) Public willingness to attend workshops on energy conservation and renewable energy.
5) Common sources of information pertaining to energy and conservation.
6) The perception of most useful means to deliver energy information for each group.

This data provides the basis for an effective market strategy to assist the DNRC in targeting its public information, education, and energy outreach activities.

The following sections outline the survey findings for each

survey. Certain questions are not specifically relevant to marketing strategy, and therefore are not discussed (see Appendix B for complete results of surveys).

3.1 General Public

Of the 601 people interviewed, 496 respondents (82.5 percent) had installed either double pane or storm windows, and 265 people (53.4 percent) indicated they had adopted this measure because of rising prices. Only 82 persons (13.6 percent) said they installed fireplace inserts, and of that group, 74 (90.2 percent) said they had installed inserts as a result of rising energy costs. Table 5 ranks from high to low the "have taken" responses of various energy conservation practices.

Table 6 presents data on the cross-tabulations of questions regarding the level of awareness of certain energy technologies versus action taken or planned. For example, 11 out of the 99 people who indicated they were very familiar with solar heating were actually using it versus 4 persons out of 303 who said they were somewhat familiar with solar heating were actually using it.

The majority (236 responses or 39.3 percent) of the respondents had obtained information on conservation and renewable energy from newspapers, whereas the fewest number of individuals (12

TABLE 5

RANKING OF ENERGY MEASURES IMPLEMENTED

Energy Measure	Have Taken		Taken Due to Rising Energy Costs		Plan to Take	
	Response	Percent of Total	Response	Percent of Column 1	Response	Percent of Total
Double pane or storm windows	496	82.5	265	53.4	26	4.3
Weatherstripping	471	78.4	327	69.4	24	4.0
Turned down thermostat more than 5 degrees	452	75.2	434	96.0	0	0.0
Storm doors	449	74.7	242	53.9	24	4.0
Ceiling insulation	382	63.6	188	49.2	36	6.0
Wall insulation	334	55.6	126	37.7	14	2.3
Lowered hot water heater thermostat	322	53.6	312	96.9	1	0.2
Insulated window covers	205	34.1	182	88.8	18	3.0
Hot water heater wrap or pipe wraps	200	33.3	195	97.5	19	3.2
Fireplace inserts	82	13.6	74	90.2	5	0.8

TABLE 6

CROSS-TABULATIONS OF ENERGY TECHNOLOGY
AWARENESS VERSUS ACTION

Energy Technology/Use	Very Familiar		Somewhat Familiar	
	Response	Percent	Response	Percent
Solar heating				
Now using (Q-35 x Q-40)	11	31.4	4	7.8
Plan to use (Q-35 x Q-43)	24	68.6	47	92.2
Electricity from sunlight				
Now using (Q-36 x Q-40)	0	0.0	0	0.0
Plan to use (Q-36 x Q-43)	1	100.0	0	0.0
Wind				
Now using (Q-37 x Q-40)	2	50.0	0	0.0
Plan to use (Q-37 x Q-43)	2	50.0	7	100.0
Small-scale hydropower				
Now using (Q-38 x Q-40)	1	50.0	0	0.0
Plan to use (Q-38 x Q-43)	1	50.0	1	100.0
Geothermal				
Now using (Q-39 x Q-40)	0	0.0	0	0.0
Plan to use (Q-39 x Q-43)	1	100.0	0	0.0

responses or 2.0 percent) had obtained energy information from workshops. When asked the degree (very helpful, somewhat helpful, or not helpful) to which certain sources would help in delivering information, magazines ranked the highest (324 or 53.9 percent responding "very helpful"), while "on the job" ranked the lowest (398 or 66.3 percent responding "not helpful"). Table 7 ranks these various sources of information.

TABLE 7

RANKING OF SOURCES/DELIVERY OF ENERGY INFORMATION

A. Source of Energy Information

Source	Response	Percent
Newspapers	236	39.3
Magazines	135	22.5
TV	107	17.8
Job	47	7.8
Radio	45	7.5
Workshops	12	2.0

B. Delivery of Information

	Very Helpful	
Source	Response	Percent
Magazines	324	53.9
TV	264	43.9
Newspapers	260	43.3
Radio	147	24.5
Workshops	138	23.0
Job	91	15.1

A total of 518 (86.2 percent) respondents believed there should be some form of public energy education, and 405 (67.4 percent) were interested in participating in such programs. Most of the respondents (216 or 35.9 percent) thought utility companies should pay for such energy education.

Table 8 shows the cross-tabulations of those in favor of public energy education by geographic location (i.e., planning district), as well as those who are familiar with the energy conservation program "Twelve Ways to Turn Down Your Energy Bills," again by geographic location.

TABLE 8

CROSS-TABULATIONS OF PLANNING DISTRICT
AND PUBLIC ENERGY EDUCATION/ENERGY CONSERVATION PROGRAM

Planning District*	Total Response	In Favor of Public Energy Education**		Familiar with "Twelve Ways to Turn Down Your High Energy Bills"***	
		Response	Percent	Response	Percent
1	33	28	84.8	9	27.3
2	21	14	66.7	2	9.5
3	29	26	89.7	4	13.8
4	22	21	95.5	4	18.2
5	111	99	89.2	25	22.5
6	15	11	73.3	4	26.7
7	118	103	87.3	29	24.6
8	38	33	86.8	4	10.5
9	47	43	91.5	19	40.4
10	49	37	75.5	7	14.3
11	50	46	92.0	17	34.0
12	68	57	83.8	24	35.3
Total	601	518	86.2	148	24.6

*See Table 3 for Planning District breakdown.
**Crosstabs of Q-64 x Q-32
***Crosstabs of Q-64 x Q-58

3.2 Farmers and Ranchers

Approximately 1,000 farmers and ranchers responded to the energy outreach survey. Question 1 asked them to rate their knowledge (very familiar, somewhat familiar, or not familiar) of various electric and liquid/gaseous fuel energy technologies. Question 2 asked if they used/were now using, planned to use, or did not plan to use these technologies. Table 9 presents the responses to these inquiries.

The farmers and ranchers were also asked to rate their knowledge (very familiar, somewhat familiar, or not familiar) of wind powered mechanical stockwater pumps, efficient farm equipment sizing, and energy efficient irrigation systems, (i.e., pump sizing, timed use, and maintenance). The majority of the farmers were either very or somewhat familiar with wind powered mechanical pumps (76.9 percent) or efficient farm equipment sizing (70.6 percent); however, the majority (55.4 percent) were not familiar with energy efficient irrigation systems. In Question 5, farmers and ranchers were asked whether they had used/were now using, planned to use, or did not plan to use these energy conservation or renewable energy technologies. The majority of the responses indicated they did not plan to use wind powered mechanical stockwater pumps (61.5 percent) or energy efficient irrigation systems (63.7 percent), whereas 62.4 percent indicated they were using or had used efficient farm equipment sizing. Table 10 shows the farmer and rancher responses to Questions 4 and 5.

TABLE 9

AWARENESS AND IMPLEMENTATION OF ALTERNATIVE ENERGY PRODUCTION TECHNOLOGIES

Energy Technology	Very Familiar		Somewhat Familiar		Not Familiar	
	Response	Percent	Response	Percent	Response	Percent
I. Awareness						
A. Electricity						
1) Wind generation	129	12.7	667	65.6	217	21.3
2) Small scale hydropower	43	4.2	294	28.9	651	64.0
B. Liquid/Gaseous Fuels						
1) Ethanol from grain	68	6.7	488	48.0	448	44.1
2) Crop residue	40	3.9	298	29.3	655	64.4
3) High protein by-products from ethanol	42	4.1	296	29.1	659	64.8
4) Methane from manure	26	2.6	369	36.3	595	58.5

	Used/Now Using		Plan to Use		Do Not Plan to Use	
	Response	Percent	Response	Percent	Response	Percent
II. Implementation						
A. Electricity						
1) Wind generation	108	10.6	196	19.3	665	65.4
2) Small scale hydropower	6	0.6	91	8.9	867	85.3
B. Liquid/Gaseous Fuels						
1) Ethanol from grain or crop residue	31	3.0	180	17.7	758	74.5
2) High protein by-products from ethanol	9	8.8	105	10.3	844	83.0
3) Methane from manure	1	0.1	59	5.8	905	89.0

TABLE 10

AWARENESS AND IMPLEMENTATION OF CONSERVATION OR RENEWABLE ENERGY TECHNOLOGIES

Energy Technology	Very Familiar		Somewhat Familiar		Not Familiar	
I. Awareness	Response	Percent	Response	Percent	Response	Percent
Wind powered mechanical stockwater pumps	374	36.8	408	40.1	225	22.1
Efficient farm equipment sizing	316	31.1	402	39.5	285	28.0
Energy efficient irrigation systems	137	13.5	296	29.1	563	55.4
	Used/Now Using		Plan to Use		Do Not Plan to Use	
II. Implementation	Response	Percent	Response	Percent	Response	Percent
Wind powered mechanical stockwater pumps	240	23.6	118	11.6	625	61.5
Efficient farm equipment sizing	365	35.9	269	26.5	351	34.5
Energy efficient irrigation systems	161	15.8	174	17.1	648	63.7

The Montana Farmer-Stockman ranked the highest when asked where they had found energy information; 853 (83.9 percent) farmers and ranchers indicated finding information on energy conservation and renewable energy in this publication (see Table 11). The Montana Farmer-Stockman also received the highest response rate (679 responses or 66.8 percent) when asked the most helpful

method to deliver energy information. The Montana Grassroots ranked lowest as both a source of energy information and as a method of delivering such information (i.e., 569 respondents or 55.9 percent had not found energy information in this magazine and only 144 or 14.2 percent found it very helpful in delivering energy information).

TABLE 11

RANKING OF SOURCES/DELIVERY OF ENERGY INFORMATION

A. Source of Energy Information

Source	Response	Percent
Montana Farmer-Stockman	853	83.9
Montana Rural Electric News	684	67.3
Daily newspapers	627	61.7
TV	588	57.8
Radio	541	53.2
Weekly newspapers	458	45.0
Montana Wheat Scoop	389	38.2
Association newsletters	378	37.2
Montana/Wyoming Agri-News	267	26.3
Association meetings	250	24.6
Montana Grassroots	169	16.6

B. Delivery of Information

Source	Very Helpful	
	Response	Percent
Montana Farmer-Stockman	679	66.8
Montana Rural Electric News	509	50.0
TV	499	49.1
Daily newspapers	451	44.3
Radio	433	42.6
Weekly newspapers	363	35.7
Association newsletters	308	30.3
Association meetings	305	30.0
Montana/Wyoming Agri-News	281	27.6
Montana Wheat Scoop	247	24.3
Montana Grassroots	144	14.2

3.3 Large Business

Seventy-eight respondents (38.8 percent) of the 201 large businesses indicated that an energy audit had been conducted at their place of business, whereas 152 respondents (75.6 percent) indicated that they had implemented an energy management program to reduce costs. If they had implemented changes, 19 (9.5 percent) believed they had saved more than 25 percent of their energy consumption, 120 (59.7 percent) believed they had saved less than 25 percent, and 57 (28.4 percent) none.

In Question 4, responses from the large businesses indicated they are knowledgeable (77.6 percent - very familiar) about insulation, caulking, and weatherstripping, and least knowledgeable (62.2 percent - not familiar) about active solar heating. Question 5 asked whether they were using, planned to use, or did not plan to use certain energy conservation measures. The results of the responses are presented in Table 12.

Magazines were indicated as the most popular information source on energy conservation or renewable energy, whereas the least popular source was civic organizations (Table 13). The respondents rated energy workshops as the most helpful method to deliver energy information, and rated civic organizations as the least helpful (Table 13).

TABLE 12

IMPLEMENTATION OF ENERGY CONSERVATION MEASURES

Energy Measure	Are Using		Plan to Use		Not Using/Do Not Plan to Use	
	Response	Percent	Response	Percent	Response	Percent
Additional insulation	109	59.2	20	10.0	72	35.8
Infiltration corrections	146	72.6	10	5.0	45	22.4
Lighting modifications	109	54.2	12	6.0	79	39.3
Double or triple pane windows	111	55.2	13	6.5	76	37.8
Insulated window covers	21	10.4	7	3.5	172	85.6
Passive solar heating	12	6.0	2	1.0	186	92.5
Active solar heating	3	1.5	0	0.0	197	98.0
Increased thermostat setting in summer	132	65.7	5	2.5	64	31.8
Decreased thermostat setting in winter	157	78.1	1	0.5	43	21.4
Heat recovery devices	69	34.3	13	6.5	118	58.7
Computer control systems	30	14.9	15	7.5	155	77.1
Insulated boilers, furnaces, ducts, pipes, water heater	130	64.7	3	1.5	67	33.3
Closed off unused or slightly used portions of building	111	55.2	2	1.0	87	43.3
Clock control thermostat	76	37.8	1	0.5	123	61.2
Storm windows	52	25.9	2	1.0	146	72.6

TABLE 13

RANKING OF SOURCES/DELIVERY OF ENERGY INFORMATION

A. Source of Energy Information

Source	Response	Percent
Magazines	158	78.6
Professional associations/ publications	150	74.6
Newspapers	136	67.7
TV	124	61.7
Radio	105	52.2
Energy workshops	83	41.3
Civic organizations	47	23.4

B. Delivery of Information

Source	Very Helpful	
	Response	Percent
Energy workshops	171	85.1
Professional associations/ publications	141	70.1
Magazines	133	66.2
Newspapers	105	52.2
TV	100	49.8
Radio	83	41.3
Civic organizations	69	34.3

Most respondents (89.6 percent or 180 respondents) were interested in attending energy workshops if they were available in their area. Seventy-seven respondents (38.3 percent) indicated they thought the participants should pay for these workshops.

3.4 Small Businesses

Of the 429 small businesses that were surveyed, only 55 (12.8 percent) had actually had an energy audit conducted at their place of business. Those who had an energy audit reported changes in energy use as follows: 3 respondents (.7 percent) indicated extensive changes, 45 (10.5 percent) some changes, and 11 (2.6 percent) no changes had occurred.

In Question 2, the respondents were asked to rate their familiarity (very familiar, somewhat familiar, or not familiar) with specific conservation measures. Table 14 shows the number of responses reported for each measure. In Question 3, the respondents were questioned if their business had used/was using, planned to use, or did not plan to use these energy measures (see Table 15). Ninety respondents (21.0 percent) thought they had saved more than 25 percent of their energy consumption as a result of implementing these measures, while 274 (63.9 percent) indicated energy consumption savings of less than 25 percent, and 49 (11.4 percent) answered no energy consumption savings.

TABLE 14

AWARENESS OF ENERGY CONSERVATION MEASURES

Energy Conservation Measure	Very Familiar		Somewhat Familiar		Not Familiar	
	Response	Percent	Response	Percent	Response	Percent
Insulation, caulking, weatherstripping	267	62.2	145	33.8	12	2.8
Heating system maintenance	161	37.5	199	46.4	62	14.5
Passive solar heating	57	13.3	162	37.8	197	45.9
Active solar heating	38	8.9	155	36.1	221	51.5
Lighting modifications	62	14.5	170	39.6	187	43.6

TABLE 15

IMPLEMENTATION OF ENERGY CONSERVATION MEASURES

Energy Conservation Measure	Used/Now Using		Plan to Use		Do Not Plan to Use	
	Response	Percent	Response	Percent	Response	Percent
Increased thermostat setting in summer	216	50.3	21	4.9	150	35.0
Decreased thermostat setting in winter	320	74.6	35	8.2	63	14.7
Made furnace/boiler modifications	80	18.6	32	7.5	277	64.6
Installed heat recovery devices	48	11.2	31	7.2	314	73.2
Installed computer control systems	8	1.9	11	2.6	372	86.7
Insulated boilers, furnaces, ducts, pipes, water heaters	100	23.3	66	15.4	226	52.7
Upgraded lighting system	103	24.0	55	12.8	241	56.2
Installed caulking or weatherstripping	261	60.8	73	17.0	79	18.4
Installed insulation in ceiling, floors, or walls	219	51.0	48	11.2	143	33.3
Installed double door entryway	113	26.3	53	12.4	236	55.0
Installed storm windows	165	38.5	44	10.3	196	45.7
Closed off unused or slightly used portions of building	218	50.8	29	6.8	160	37.3
Installed insulated window covers	60	14.0	42	9.8	300	69.9
Added clock control thermostat	44	10.3	31	7.2	321	74.8
Passive solar heating	31	7.2	18	4.2	345	80.4
Active solar heating	11	2.6	13	3.0	367	85.5
Double or triple pane windows	165	38.5	34	7.9	203	47.3

Energy information was most often found in magazines indicated 330 respondents (76.9 percent). Energy workshops were ranked as the lowest potential source of information; however, 243 respondents (56.6 percent) thought energy workshops would be a very helpful method of delivering information on energy conservation and renewable energy (see Table 16). Furthermore, 68.8 percent (295 respondents) showed an interest in attending energy-related workshops in their area, and 45.5 percent (195 respondents) thought the participants should pay for these workshops.

TABLE 16

RANKING OF SOURCES/DELIVERY OF ENERGY INFORMATION

A. Source of Energy Information

Source	Response	Percent
Magazines	330	76.9
Newspapers	293	68.3
TV	276	64.3
Professional associations/ publications	215	50.1
Radio	207	48.3
Civic organizations	96	22.4
Energy workshops	88	20.5

B. Delivery of Information

	Very Helpful	
Source	Response	Percent
Energy workshops	243	56.6
Newspapers	214	49.9
Magazines	210	49.0
TV	210	49.0
Professional associations/ publications	152	35.4
Radio	140	32.6
Civic organizations	92	21.4

3.5 Builders

A total of 256 firms responded to the builders survey. Of that number, 204 respondents (79.7 percent) indicated that they were very familiar with the energy conservation product insulation (R-38 ceiling, R-19 walls), whereas 67 respondents (26.2 percent) were very familiar with super insulation (R-60+ ceiling, R-40 walls). Table 17 presents the distribution of the respondents' knowledge as well as the use of other energy conservation building/design techniques, materials, and products.

TABLE 17

AWARENESS AND IMPLEMENTATION OF ENERGY CONSERVATION BUILDING/DESIGN TECHNIQUES, MATERIALS, AND PRODUCTS

Technique, Material, Product	Very Familiar	Somewhat Familiar	Used/ Now Using	Plan to Use
Insulation	204	45	--	--
Super insulation	67	123	51	93
Active solar heating	38	138	29	85
Passive solar heating	77	121	79	101
Solar greenhouses/sun spaces	58	125	50	90
Earth sheltering	49	150	36	104
Double or triple pane windows	194	56	126*	81*
High efficiency furnaces	54	118	52	111
Double envelope construction	48	123	24	58
Air-to-air heat exchangers	35	121	32	84
Energy efficient appliances	58	157	95	118

*Only triple pane windows

Question 5 asked the respondents: "To what extent do you feel the following building/design techniques, materials, or products enhance the salability of buildings or structures?" Table 18 shows these responses (great deal and somewhat) to that question.

TABLE 18

EXTENT THAT BUILDING/DESIGN TECHNIQUES, MATERIALS, OR PRODUCTS ENHANCE THE SALABILITY OF BUILDINGS OR STRUCTURES

Technique, Material, or Product	Great Deal		Somewhat	
	Response	Percent	Response	Percent
Super insulation	126	49.2	100	39.1
Active solar heating	44	17.2	161	62.9
Passive solar heating	95	37.1	123	48.0
Solar greenhouses/sun spaces	59	23.0	138	53.9
Earth sheltering	41	16.0	158	61.7
Triple pane windows	144	56.3	91	35.5
High efficiency furnaces	109	42.6	117	45.7
Double envelope construction	45	17.6	146	57.0
Air-to-air heat exchangers	47	18.4	155	60.5
Energy efficient appliances	105	41.0	122	47.7

The respondents were also asked where they found information on energy conservation or renewable energy, and which of these information sources were most helpful. Table 19 ranks the responses to these questions.

TABLE 19

RANKING OF SOURCES/DELIVERY OF ENERGY INFORMATION

A. Source of Energy Information

Source	Response	Percent
Magazines	236	92.2
Professional associations/ publications	207	80.9
Newspapers	146	57.0
Energy workshops	130	50.8
TV	128	50.0
Radio	67	26.2

B. Delivery of Information

Source	Very Helpful	
	Response	Percent
Energy workshops	200	78.1
Magazines	162	63.3
Professional associations/ publications	154	60.2
Newspapers	103	40.2
TV	89	34.8
Radio	50	19.5

Of the 256 respondents, 232 (90.6 percent) indicated an interest in attending energy workshops in their area. Furthermore, 47.7 percent (122 respondents) thought the participants should pay for these workshops.

3.6 Architects

In the architect survey, Question 1 asked the respondents to rate their knowledge (very familiar, somewhat familiar, or not familiar) of certain energy conservation building/design techniques, materials, and products. Question 2 asked the respondents to indicate whether they had used/were using, planned to use, or did not plan to use these energy conservation measures. Table 20 and Table 21 present the responses to the questions.

TABLE 20

AWARENESS OF ENERGY CONSERVATION TECHNIQUES, MATERIALS, OR PRODUCTS

Technique Material, or Product	Very Familiar		Somewhat Familiar		Not Familiar	
	Response	Percent	Response	Percent	Response	Percent
Insulation	217	96.9	7	3.1	0	0.0
Super insulation	75	33.5	111	49.6	37	16.5
Active solar heating	68	30.4	138	61.6	17	7.6
Passive solar heating	151	67.4	71	31.7	2	0.9
Solar greenhouse/ sun spaces	114	50.9	99	44.2	9	4.0
Earth sheltering	122	54.5	89	39.7	12	5.4
Double or triple pane windows	200	89.3	24	10.7	0	0.0
High efficiency furnaces	43	19.2	116	51.8	65	29.0
Double envelope construction	71	31.7	130	58.0	23	10.3
Air-to-air heat exchangers	70	31.3	107	47.8	45	20.1
Energy efficient appliances	55	24.6	136	60.7	33	14.7

TABLE 21

IMPLEMENTATION OF ENERGY CONSERVATION TECHNIQUES, MATERIALS, OR PRODUCTS

Technique Material, or Product	Used/Now Using		Plan to Use		Do Not Plan to Use	
	Response	Percent	Response	Percent	Response	Percent
Super insulation	51	22.8	71	31.7	92	41.1
Active solar heating	74	33.0	58	25.9	90	40.2
Passive solar heating	170	75.9	46	20.5	6	2.7
Solar greenhouse/ sun spaces	108	48.2	92	41.1	21	9.4
Earth sheltering	114	50.9	84	37.5	23	10.3
Triple pane windows	129	57.6	51	22.8	42	18.8
High efficiency furnaces	45	20.1	133	59.4	39	17.4
Double envelope construction	21	9.4	76	33.9	123	54.9
Air-to-air heat exchangers	76	33.9	93	41.5	48	21.4
Energy efficient appliances	96	42.9	103	46.0	18	8.0

In Question 5, the respondent was asked: "To what extent do you feel the following building/design techniques, materials, or products enhance the salability of buildings or structures?" Passive solar heating and solar greenhouses/sun spaces were the most salable features with only 3 responses and 9 responses indicating "not at all," respectively. The "great deal" and "somewhat" answers are shown in Table 22.

TABLE 22

EXTENT THAT BUILDING/DESIGN TECHNIQUES, MATERIALS, OR PRODUCTS ENHANCE THE SALABILITY OF BUILDINGS OR STRUCTURES

Technique, Material, or Product	Great Deal		Somewhat	
	Response	Percent	Response	Percent
Super insulation	78	34.8	118	52.7
Active solar heating	28	12.5	161	71.9
Passive solar heating	147	65.6	72	32.1
Solar greenhouses/sun spaces	106	47.3	105	46.9
Earth sheltering	67	29.9	129	57.6
Triple pane windows	91	40.6	115	51.3
High efficiency furnaces	84	37.5	110	49.1
Double envelope construction	30	13.4	133	59.4
Air-to-air heat exchangers	40	17.9	142	63.4
Energy efficient appliances	88	39.3	113	50.4

Professional associations/publications were the most popular information source for conservation and renewable energy, whereas the radio was the least popular source (see Table 23). Energy workshops, on the other hand, were indicated as being the most helpful means of conveying information and the radio was the least helpful (see Table 23).

TABLE 23

RANKING OF SOURCES/DELIVERY OF ENERGY INFORMATION

A. Source of Energy Information

Source	Response	Percent
Professional associations/ publications	218	97.3
Magazines	210	93.8
Energy workshops	197	87.9
Newspapers	128	57.1
TV	93	41.5
Radio	38	17.0

B. Delivery of Information

	Very Helpful	
Source	Response	Percent
Energy workshops	192	85.7
Professional associations/ publications	187	83.5
Magazines	149	66.5
Newspapers	75	33.5
TV	73	32.6
Radio	33	14.7

When asked whether the respondents would be willing to attend an energy workshop in their area, 209 (93.3 percent) responded "yes," whereas 13 (5.8 percent) responded "no." Furthermore, 68.8 percent (154 respondents) indicated the workshop participants should pay for these workshops.

3.7 Lenders

Of the 347 lenders which responded to the survey, 310 respondents (89.3 percent) indicated that they would lend money on the additional cost of super insulation (R-60+ ceiling, R-40 walls). When asked the same question regarding passive solar heating and active solar heating, the following responses occurred: 242 (69.7 percent) would lend money on passive and 249 (71.8 percent) would lend on active solar heating.

When asked about the influence that the federal energy tax credit (to homeowners) had contributed to energy conservation and renewable energy, 41 (11.8 percent) responded "great deal," 275 (79.3 percent) "somewhat," and 21 (6.1 percent) "not at all." The same question was asked about federal energy tax credits to financial institutions and the following responses were registered: 10 (2.9 percent) answered "great deal," 204 (58.8 percent) "somewhat," and 95 (27.4 percent) "not at all." When asked to rate their knowledge of these two federal tax programs, the majority answered either somewhat familiar (219 or 63.1 percent to federal energy tax credits to homeowners) or not familiar (246 or 70.9 percent to federal energy tax credits to financial institutions). The response to the question regarding the familiarity with the state energy tax credit program to conserve energy was answered by the majority (91.1 percent or 316 responses) of the respondents as somewhat familiar/not familiar with the program. A large number (86.8 percent or 301 responses) of the respondents indicated that the

state credit tax program had somewhat/not at all contributed to energy conservation and renewable energy.

Questions 8 and 9 dealt with the respondent's source of information on energy conservation/renewable energy and their perception of how helpful they believed the sources were in delivering energy information. Table 24 ranks the popularity of different information sources. From this data, it can be surmised that the TV is not only the place where the respondents most often found energy information, but also ranked the highest in their perception of the most helpful method of delivering energy information. Furthermore, 169 respondents (48.7 percent) found energy workshops to be a very helpful method to deliver energy information, whereas 287 (82.7 percent) indicated they would be willing to attend energy workshops in the area. Moreover, a large number of the respondents (45.2 percent) thought the participants should pay for these workshops.

TABLE 24

RANKING OF SOURCES/DELIVERY OF ENERGY INFORMATION

A. Source of Energy Information

Source	Response	Percent
TV	292	84.1
Magazines	287	82.7
Newspapers	277	79.8
Radio	200	57.6
Professional associations/ publications	177	51.0
Energy workshops	92	26.5

B. Delivery of Information

Source	Very Helpful Response	Percent
TV	239	68.9
Newspapers	209	60.2
Energy workshops	169	48.7
Magazines	165	47.6
Radio	143	41.2
Professional associations/ publications	85	24.5

3.8 Appraisers

Out of 45 respondents in the appraisers profession, 21 respondents (46.7 percent) thought they would save more than 25 percent of energy consumption by installing super insulation in a new home. An equal number (21 respondents) indicated they would save less than 25 percent as a result of taking this measure.

The response was more unbalanced, however, when asked the same question about passive solar heating with 64.4 percent (29 respondents) answering less than 25 percent and 26.7 percent

(12 respondents) answering more than 25 percent. Responses to active solar heating were 53.3 percent (24 responses) and 40.0 percent (18 responses) for more than 25 percent energy consumption savings and less than 25 percent savings, respectively.

In Question 2, the respondent was asked the extent they thought certain building/design techniques, materials, or products would increase the property value of homes. The majority of respondents (more than 50 percent) indicated that they thought such measures would "somewhat" increase the property value (see Table 25).

TABLE 25

EXTENT THAT BUILDING/DESIGN TECHNIQUES, MATERIALS, OR PRODUCTS INCREASE PROPERTY VALUES

Technique, Material, or Product	Great Deal		Somewhat	
	Response	Percent	Response	Percent
Insulation	14	31.1	25	55.6
Super insulation	10	22.2	28	62.2
Active solar heating	7	15.6	32	71.1
Passive solar heating	4	8.9	34	75.6
Solar greenhouses/sun spaces	3	6.7	35	77.8
Double or triple pane windows	13	28.9	27	60.0
High efficiency furnaces	8	17.8	26	57.8
Double envelope construction	5	11.1	29	64.4
Air-to-air heat exchangers	4	8.9	31	68.9
Energy efficient appliances	3	6.7	25	55.6

Seventeen respondents (37.8 percent) thought uniform state energy building codes should be strengthened, whereas 25 respondents (55.6 percent) answered they should be "left as is." No respondents believed the codes should be reduced.

The response was almost equally divided in Question 7, which asked whether the respondent would support the adoption of a home energy rating system. Twenty-five respondents (55.6 percent) indicated they would support such a system, while 20 (44.4 percent) indicated they would not.

In comparing the source of energy information (Question 8) with the respondent's perception of the most helpful means of delivering energy information (Question 9), the source "professional associations/publications" ranked highest in both questions, while radio ranked lowest (see Table 26).

There was a strong interest (91.1 percent answering "yes") in the willingness to attend energy workshops if they were available in their area. Furthermore, 53.3 percent (24 respondents) of the respondents believed the participants should pay for these workshops.

TABLE 26

RANKING OF SOURCES/DELIVERY OF ENERGY INFORMATION

A. Source of Energy Information

Source	Response	Percent
Professional associations/ publications	44	97.8
Magazines	37	82.2
Newspapers	33	73.3
TV	31	68.9
Energy workshops	27	60.0
Radio	12	26.7

B. Delivery of Information

	Very Helpful	
Source	Response	Percent
Professional associations/ publications	25	55.6
Energy workshops	21	46.7
TV	21	46.7
Newspapers	18	40.0
Magazines	18	40.0
Radio	10	22.2

3.9 Realtors

Of the 233 responses in the realtors survey, 61.4 percent (143 respondents) indicated they were somewhat familiar with the utility companies' loan programs for financing residential energy conservation and renewable energy installations, whereas 19.7 percent (46 respondents) responded very familiar, and 18.0 percent (42 respondents) not familiar. The extent to which the respondents thought the utility companies' loan program had contributed to residential energy conservation and renewable energy usage had the same ordinal ranking as the "knowledge" question: 73.0 percent (170 respondents) somewhat, 13.3 percent (31 respondents) great deal, and 11.2 percent (26 respondents) not at all.

The response was similar when asked about their knowledge of the federal and state residential tax program (i.e., energy tax credits) to conserve energy. Most of the respondents answered somewhat familiar (66.5 percent or 155 respondents were somewhat familiar with federal energy tax credits, and 53.6 percent or 125 respondents with state energy tax credits). The majority of respondents answered they thought the federal and the state energy tax credit programs had "somewhat" contributed to energy conservation and renewable energy (78.1 percent or 182 respondents on federal, and 77.7 percent or 181 respondents on state).

Fifty-three respondents (22.7 percent) indicated they were very familiar with current state and federal (VA/FHA - HUD) building standards as they relate to energy conservation and renewable energy installations, 132 (56.7 percent) answered they were somewhat familiar, and 48 (20.6 percent) not familiar. When asked if they thought uniform state energy building codes should be strengthened, left as is, or reduced, the response was 83 (35.6 percent), 122 (52.4 percent), and 21 (9.0 percent), respectively.

Question 9 asked whether the respondent would support the adoption of a home energy rating system which is similar to the EPA car mileage system. Of the 226 responding (7 did not respond to this question), 117 (50.2 percent) answered "yes" and 109 (46.8 percent) answered "no."

Table 27 presents the number of "great deal" and "somewhat" responses to Question 10. This question asked to what extent the respondent thought certain building/design techniques, materials, or products added to the salability of homes.

TABLE 27

EXTENT THAT BUILDING/DESIGN TECHNIQUES, MATERIALS, OR PRODUCTS ENHANCE THE SALABILITY OF HOMES

Technique, Material, or Product	Great Deal		Somewhat	
	Response	Percent	Response	Percent
Insulation	129	55.4	92	39.5
Super insulation	112	48.1	102	43.8
Active solar heating	49	21.0	146	62.7
Passive solar heating	54	23.2	142	60.9
Solar greenhouses/sun spaces	39	16.7	132	56.7
Double or triple pane windows	142	60.9	87	37.3
High efficiency furnaces	100	42.9	119	51.1
Double envelope construction	44	18.9	141	60.5
Air-to-air heat exchangers	30	12.9	157	67.4
Energy efficient appliances	54	23.2	135	57.9

Table 28 contains the responses to Question 11 regarding where the respondents found information on energy conservation or renewable energy as well as responses to Question 12 which asked their perception of the most helpful means to deliver energy information. The responses to these questions are ordinally ranked from high to low.

TABLE 28

RANKING OF SOURCES/DELIVERY OF ENERGY INFORMATION

A. Source of Energy Information

Source	Response	Percent
Magazines	203	87.1
Newspapers	178	76.4
TV	173	74.2
Professional associations/ publications	169	72.5
Radio	82	35.2
Energy workshops	75	32.2

B. Delivery of Information

	Very Helpful	
Source	Response	Percent
TV	143	61.4
Newspapers	122	52.4
Magazines	110	47.2
Energy workshops	101	43.3
Professional associations/ publications	96	41.2
Radio	79	33.9

Many of the respondents (43.3 percent) thought energy workshops would be a very helpful method of delivering information on renewable energy and conservation. Moreover, 85.0 percent (198 respondents) indicated they would attend workshops related to their profession if they were offered in their area, and 48.1 percent (112 respondents) thought the participants should pay for these workshops.

IV. MARKETING PLAN

Marketing begins with the product itself. A marketable product must at least to a degree sell itself; it must have value, either real or perceived. The justification for the purchase of any product includes both tangible and intangible factors but the fact remains that the buyer must want it, or be convinced to want it for whatever reason.

Conservation and renewable energy technologies are very similar to other products. Efficient energy use or production by definition costs less money than the conventional alternative, and therefore has market value. Public sponsored marketing of conservation and renewable resource use is also justified for environmental reasons. In addition to being clean, both conservation and the use of renewable resources allow society to maintain their nonrenewable resource base for future generations. There may also be some degree of pure image appeal to this product, just as there is with other items.

Although there are parallels between conservation, renewable energy, and other private products, there may be very different marketing motivations. The natural goal and necessity of a business is to make a profit, whereas the role of government is to serve the public interest. When conservation or renewable energy sources cost less than the conventional alternative,

there is general agreement that active marketing of this resource is in the public interest. But when it costs more or when it is not needed, is it justified? Conservation and renewable energy are economic resources just like a power plant and therefore should be evaluated (and marketed) on a comparable basis. This theme of selling "cost-effectiveness" is central to the following strategies. The suggested emphasis, however, is not meant to imply that the use of renewable resources over nonrenewables is without value. Perhaps a point or priority system comparable to the Regional Power Act should be considered in the state's energy marketing plan. Some explicit decision should be made before any active marketing campaign.

4.1 General Public

4.1.1 Market Focus

Relatively few individuals have had on-site energy audits and of those who have, fewer still have used a utility loan program. This perhaps implies that merely knowing what to do to reduce energy costs may not be translated into action. Most respondents, however, reported that they have taken some form of action (largely independent from the utility loan program) to reduce energy costs. Of those individuals who have implemented an energy conservation measure, approximately 70 percent did so to reduce rising energy costs. Interestingly, of those who have not yet taken action, very few of this group (6.8

percent) currently plan to change their energy use pattern. This may mean that unless energy prices significantly rise, comparatively few people who have not already conserved will do so within the immediate future. Or, it may be simply a reflection of the fact that most individuals are not aware of potential savings.

4.1.2 Suggested Marketing Approach

Marketing efforts should stress the cost savings potential of conservation and renewable energy. If the goal is to maximize the economic (as opposed to environmental) benefits of conservation or renewable energy, then those most cost-effective measures should be emphasized. There would be considerable consumer interest in estimates or ranges of savings by specific measure, technology, or combinations of both. In a sense, this would represent life cycle costing reduced to a lay format. This type of information should help create an increased demand for conservation retrofit, improved new housing standards, and renewable resource utilization. Those technologies and measures which exceed avoided costs (i.e., the cost of a new conventional power plant) should not be marketed, or should at the least carry the caveat that they are not cost effective.

Current utility programs as well as potential tax advantages should be stressed. If the rate base conservation legislation

(SB 456) is approved by the 48th Montana Legislature, the implications of this act should be considered in state-sponsored programs. Additionally, the dynamics of the energy industry should be clearly presented to the public. In particular, people need to know why conservation may not result in nominal, but relative, declines in their utility bills and that the conservation efforts of others help to keep their own cost down. It should be made clear how energy surpluses through either new plant construction or conservation may not immediately reduce their individual utility costs or cost to society in general. Basic information on why rates increase, and discussion of cost-effective measures to reduce these increases, would probably be of considerable interest to the public.

On the basis of the survey information, some combination of newspaper articles (including weeklies), Montana-based magazines, and television public service announcements would very likely represent the most effective way of communicating/marketing conservation and renewable energy to the general public of Montana.

4.2 Farmers and Ranchers

4.2.1 Market Focus

The farmers and ranchers indicated a high level of awareness of wind generation as well as considerable use patterns (10

percent using, 20 percent plan to use). They also believed that it is cost effective to use wind generation; therefore, the DNRC should exploit this possibility. Cost analysis information would be helpful to this group in determining whether they should use this technology, and should be provided in the DNRC marketing effort.

The level of awareness, use, and interest of farmers and ranchers is also very high in mechanical stockwater pumps, efficient farm equipment sizing, and efficient irrigation systems. The majority of respondents believe that these three technologies are cost effective. Again, a cost analysis by the DNRC should be of interest to this group.

Ethanol production ranked high in terms of the level of interest, but less than 3 percent are actually using the technology. Marketing efforts in this area by the DNRC should be minimal because of these findings and since other organizations are deeply involved in marketing this product.

Hydropower is of some interest to farmers and ranchers, no doubt to those who may have suitable sites. Bio-gas is of little interest and is generally regarded as not cost effective, which in fact appears to be the case, at least within Montana.

4.2.2 Suggested Marketing Approach

The DNRC marketing effort should stress cost-effective criteria and actively promote those cost-effective technologies, particularly those which have a high level of current interest. The most effective way to reach this target group would probably be through a discussion of financial returns of each technology in the Montana Farmer-Stockman and the Montana Rural Electric News. Analysis of existing installations and practices with news type interviews of individual operations would also promote the concept. Again, this information should also contain a discussion of the reasons for past and projected price increases so that farmers and ranchers could include energy costs in their long-term business plans.

4.3 Large Businesses

4.3.1 Market Focus

Industrial and large commercial energy users are very price conscious. Most studies of use and price response suggest that this target market has demand elasticity coefficients often double that of the general public. Additionally, the greatest gains in energy savings are probably business-specific (i.e., type of operation), or in some cases even plant-specific. This suggests that the marketing/information delivery method will be more difficult than for other target groups which are technologically comparable within each class. Workshops stratified by type of operation (e.g., mining, wood products, or milling) may be appropriate.

As with the general public survey, the large business survey responses in terms of expected future action (i.e., plan to use) are somewhat curious. Table 12 in the preceding Chapter reveals that most businesses have already implemented a number of conservation measures, however, relatively few have plans of implementing further conservation measures. Again, the reasons for this response pattern are unclear.

With respect to interest in renewables, large businesses are generally not interested in solar heating which may be indicative of the fact that energy load is more related to processing than heating requirements. Perhaps these technological differences also explain the relatively high level of interest in cogeneration and waste heat recovery.

4.3.3 Suggested Marketing Approach

The survey responses and the nature of this target group itself both suggest that technical workshops would be most helpful. Workshops such as the recent cogeneration workshop in Missoula may also prove useful in marketing energy conservation information. From a sales standpoint (i.e., energy savings per marketing dollar) this target group may be one of the most responsive to energy conservation because of their high energy consumption. However, the extremely high energy users (e.g., Anaconda Aluminum, Stauffer Chemical) may have already implemented those measures which can be profitably justified.

4.4 Small Businesses

4.4.1 Market Focus

Small businesses represent an extremely diverse group with equally divergent energy information needs. The vast majority of these operations, however, would fall into the retail trade and service categories. This commercial sector employs approximately 60 percent of the workforce and accounts for roughly 10 to 20 percent of natural gas and electrical power use in Montana. Additionally, nearly two-thirds of all employment growth within the past decade is in this sector.

Most of this sector's energy demand is related to heating and lighting. Analysis of national input/output tables, as well as other sources, suggests that energy costs as a proportion of the total costs of doing business are significantly less than for large businesses. This probably explains why less aggressive conservation measures have been utilized by small businesses relative to their large business counterparts. The same conclusion is reinforced by a variety of national, regional, and state analyses of price elasticity. This lack of price response may also be related to the organizational structure: most are very small (less than 20 employees), comparatively new (less than five years), with a very high probability of failure (over 50 percent fail within five years). Conservation and renewable energy use apparently plays only a minor role in the survival of these types of operations. Clearly, energy is not an issue which is always

a high priority business concern. Some businesses will be more difficult to reach and will require more creativity in order to effectively market energy conservation.

4.4.2 Suggested Marketing Approach

One of the main difficulties in promoting conservation and renewable energy to small businesses is the lack of accurate information on heat load and lighting requirements. Engineering/economic analysis of end-use patterns within the commercial sector (i.e., building characteristics, size, and type of business) would provide a very useful basis of information to satisfy existing demand (i.e., plan-to options) as well as stimulate new demand through illustrations of cost savings.

If properly presented, this type of data should assist small firms in choosing cost-effective measures, especially when they own their building. Most small firms have already taken standard low-cost measures (i.e., turned down thermostat, furnace modification, lighting improvements, better weatherization) but have not yet explored more sophisticated measures. Furthermore, proportionally more small businesses indicate plans to adopt cost-effective measures than the larger firms. This represents a positive sign of interest which should be more fully exploited by the DNRC. Relative interest in solar in energy applications is also quite high but actual implementation would be based on dollars saved.

Well placed information (largely magazines--the Chamber of Commerce publication in particular, newspapers, and public service announcements) would probably help to generate an increased level of interest. Carefully timed, follow-up workshops would be of considerable value assuming that small business information needs (more detailed cost analysis by building type and business) are well served at that time. These initial workshops must be "very good" to maintain continued interest, perhaps a "one-shot" sale situation. Owners of small businesses do not have much time, demand specifics, and as a rule are not receptive to planners or consultants who cannot serve their immediate interests. They appear to be willing to pay for such workshops--the real test of interest.

4.5 Builders

4.5.1 Market Focus

Builders are often concerned about the effect that conservation measures will have on the initial sale price as well as upon the construction technique itself, primarily wall design. Energy codes such as the Regional Power Council's proposal will add approximately $3000 (or less than 5 percent) to the total cost of a house. Analysis of price effects on initial housing demand are, however, expected to be minor.

It is encouraging that many builders are planning to incorporate new measures consistent with rising energy costs. Although the current use of various techniques is rather low,

builders apparently realize that cost-effective designs will work to their individual interests in terms of marketability. The concept of life cycle costs appears to be taking hold.

Builders' attitudes will vary with general business conditions. They have recently gone through a very difficult period when construction activity fell to one-half of the level experienced in the late 1970s. Many businesses failed and unemployment is still high by historical norms. A sharp rise in inflation and lending rates, which is a distinct possibility over the next two years, would again drive down housing demand, potentially making this group more resistant to either building code changes or even voluntary conservation measures.

4.5.3 Suggested Marketing Approach

Builders are generally small businesses operating on tight margins in a very uncertain market climate. If stricter state codes are to become reality, builders must be convinced that the codes will serve their own interests. This can be accomplished in two rather dependent ways. First, public education on the economic advantages of conservation and renewable energy will over time increase the demand for energy-efficient homes and buildings. Second, builders need to be more informed about the individual competitive advantages

of marketing such units. Builders, like the general public, will respond to price signals. Energy rating systems may greatly accelerate the diffusion of information. Additionally, energy-rating systems do not rely on government mandate as do building codes, something that independent people do not like. Providing incentives as a means of encouragement is usually more effective than intimidation or legislation.

The information campaign aimed at builders can be most effectively handled through a combination of in-state magazines, professional associations/publications, builders' conferences and conventions, and local energy workshops. As with the small business group, workshop presentations must be professionally conducted conveying the maximum amount of pertinent (i.e., cost/market effective) information in a short period of time.

Self descriptive matrices of cost-saving technologies and combinations for typical structures, or more elaborate computer simulation may be of real value if presented in an understandable format. The Montana Power Company's files and simulations may represent a good source of Montana-specific information. Utility company involvement in the development of either written materials or in actual workshop presentations is suggested. Businesses typically relate better to other

businesses (e.g., the utilities, engineering, architectural firms, lending institutions) than they do to government agencies. This business image will be reinforced if participants are required to pay for workshop expenses.

4.6 Architects

4.6.1 Market Focus

Architects are probably the most conscious and progressive of the various market segments in terms of energy conservation awareness. Most believe that conservation and solar practices add to the marketability of buildings and structures. In addition, a significant number of architects who are not now utilizing conservation techniques in their designs, plan to do so in the future. They do appear, however, to be sensitive to costs as illustrated by their attitudes toward active and passive solar heating. Most architects believe a building energy rating system would be a good idea. Their overall high level of energy conservation interest is also reflected by the high attendance and interest in energy workshops.

4.6.2 Suggested Marketing Plan

Survey results suggest that information delivery can be most effectively conducted through a combination of professional association/publications and energy workshops. Conventions

and state association meetings should also be considered. In view of the general level of expertise, this group may be interested in the technical aspects of heat load simulation and costs. Computer analysis by the DNRC and perhaps distribution of relevant DNRC software may be of specific interest since many firms probably have their own micro word processing hardware. Given the architects' willingness to pay for workshops and seminars, the possibility of charging a fee for computer analysis and software appears to be feasible.

4.7 Lenders

4.7.1 Marketing Focus

Bankers lend money and they are aware that household income is the overriding constraint on mortgage payments. One unique focus that the DNRC might wish to consider in their information to lending institutions is how lower energy costs reduce real average monthly home costs. The lenders would also be interested in cost and energy saving examples. There appears to be a need to improve lenders' knowledge of state and federal tax credits as well as knowledge of the utility loan program.

4.7.2 Suggested Marketing Approach

The lenders, unlike the other groups, ranked TV very high and

association publications comparatively low as sources of information. This pattern is difficult to explain aside from the fact that banks typically advertise on TV. While workshops scored lowest in terms of a current information source, lenders indicated an interest in attending local energy workshops.

4.8 Appraisers

4.8.1 Marketing Focus

The appraisers' perceptions of energy savings technologies are somewhat difficult to explain. For example, they believe active solar saves more and is presumably more cost effective than super insulation. They also believe that current HUD codes add more to home value than super insulation. As a related issue, most appraisers would not like to see state building codes strengthened while they favor an energy rating system.

From the survey responses, it is apparent that appraisers may be more in need of cost effectiveness data than the other surveyed groups.

4.8.2 Suggested Marketing Approach

A combination of advance information through in-state association publications combined with energy workshops would be

the most effective marketing strategy. It may be appropriate to encourage several specific appraisers who have an interest interest in energy to participate in energy workshops. State conventions and other association meetings would be useful in conveying energy conservation and renewable energy information.

4.9 Realtors

4.9.1 Marketing Focus

Most realtors believe that the state energy codes should remain as they are and a slight margin favors the use of an energy rating system. As with the appraisers, the realtors apparently believe that super insulation detracts from salability relative to current federal code. They also believe double or triple-pane windows and high efficiency furnaces enhance the salability of homes.

4.9.2 Suggested Marketing Approach

A campaign stressing cost effectiveness of energy efficient homes with a variety of case studies would probably be the best market strategy for communicating energy information to this group.

Realtors would probably find a combination of newspaper articles and local workshops to be the most useful in conveying energy information. Much of this information could be "piggy-backed" for the other target groups as well.

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APPENDIX A

1. QUESTIONNAIRE COVER LETTERS

2. POSTCARD REMINDER

APPENDIX A

Cover Letter
Accompanying Farmers and Ranchers, Small Businesses, Builders, Architects, Appraisers, and Realtors Surveys

DEPARTMENT OF NATURAL RESOURCES
AND CONSERVATION
ENERGY DIVISION

TED SCHWINDEN, GOVERNOR

32 SOUTH EWING

STATE OF MONTANA

(406) 449-3780 ADMINISTRATOR & PLANNING AND ANALYSIS BUREAU
(406) 449-3940 CONSERVATION & RENEWABLE ENERGY BUREAU
(406) 449-4600 FACILITY SITING BUREAU

HELENA, MONTANA 59620

January 14, 1983

All Montanans are concerned about the rising costs of energy. Unfortunately, we have only a sketchy idea about how much the citizens of the state know or want to know about energy conservation and renewable energy programs.

You are one of a small number of people who are being asked their opinion on this matter. Your name was drawn in a random sample of the members of your profession. In order that the results will truly represent the thinking of the people of Montana, it is important that each questionnaire be completed and returned. The questionnaires will be analyzed at the Statistical Center at Montana State University.

You may be assured of complete confidentiality. Your name will never be placed on the questionnaire nor will the mailing list for this survey ever be released to anyone by us.

The results of this research will be used to improve our outreach and public information activities in the areas of energy conservation and renewable energy. You may receive a summary of the results by printing your name and address on the back of the return envelope. Please <u>do not</u> put this information on the questionnaire itself.

I would be most happy to answer any questions you might have. Please write or call (449-3940).

Thank you for your assistance.

Sincerely,

Tom Livers

Tom Livers
Project Director

Enclosure

APPENDIX A

Cover Letter
Accompanying Lenders Survey

DEPARTMENT OF NATURAL RESOURCES
AND CONSERVATION
ENERGY DIVISION

TED SCHWINDEN, GOVERNOR

32 SOUTH EWING

STATE OF MONTANA

(406) 449-3780 ADMINISTRATOR & PLANNING AND ANALYSIS BUREAU
(406) 449-3940 CONSERVATION & RENEWABLE ENERGY BUREAU
(406) 449-4600 FACILITY SITING BUREAU

HELENA, MONTANA 59620

January 12, 1983

All Montanans are concerned about the rising costs of energy. Unfortunately, we have only a sketchy idea about how much the citizens of the state know or want to know about energy conservation and renewable energy programs.

Your lending institution is one of a small number who is being asked to participate in this survey. Loan officers were selected as the most appropriate persons in lending institutions to complete the survey because we feel they are more acquainted with the survey issues. Please distribute the enclosed surveys to as many (up to three) loan officers as you employ. In order that the results will truly represent the thinking of the people of Montana, it is important that each questionnaire be completed and returned. The questionnaires will be analyzed at the Statistical Center at Montana State University.

You may be assured of complete confidentiality. Your name will never be placed on the questionnaire nor will the mailing list for this survey ever be released to anyone by us.

The results of this research will be used to improve our outreach and public information activities in the areas of energy conservation and renewable energy. You may receive a summary of the results by printing your name and address on the back of the return envelope. Please do not put this information on the questionnaire itself.

I would be most happy to answer any questions you might have. Please write or call (449-3940).

Thank you for your assistance.

Sincerely,

Tom Livers
Project Director.

Enclosure

APPENDIX A

Postcard Reminder

A few days ago you received a short questionnaire concerning energy conservation measures from the Montana Department of Natural Resources and Conservation. If you have already completed and returned it, please accept our sincere thanks. If not, please take a few minutes and do so today. Because it has been sent to only a small, but representative, sample, it is important that your information also be included in the study to complete a picture of the opinions and knowledge of energy conservation awareness and priorities.

Thank you for your help.

Sincerely,

Tom Lucas

Department of Natural
Resources and Conservation

APPENDIX B
GENERAL PUBLIC

1. SUMMARY OF RESULTS

2. QUESTIONNAIRES

3. SURVEY HISTOGRAMS

SUMMARY OF RESULTS

ENERGY OUTREACH SURVEY

GENERAL PUBLIC

Analysis of the survey data obtained during the general public telephone survey has identified the level of energy conservation and renewable energy awareness. In several instances close examination of these results has identified some important opportunities for further public information programs regarding energy conservation measures.

Over 80% of the general public indicated that they had little familiarity with the energy audit and loan programs presently available through some utility companies in Montana. During the telephone interviews it appeared that some of the survey respondents underrated their degree of knowledge of these programs. Approximately 13% of the respondents have had a home energy audit and 4% have utilized a utility company loan program.

Nearly 60% of the public indicated that they were very familiar with methods to prevent home heat loss, while less than 8% indicated that they had no notion of home heating loss prevention technologies. The method of energy conservation which received the second greatest percentage of very familiar ratings was super insulation. During the telephone interviews there were comments which indicated both a skepticism and a lack of knowledge concerning the function and effectiveness of super insulation. This is illustrated by the approximately 29% responses who claimed no familiarity with the concept. Fewer than 30% of the respondents indicated a strong familiarity with energy-efficient appliances or furnace efficiency. The data indicates a

considerable need for greater public awareness concerning all of these home energy conservation measures.

Many of the respondents indicated specific home energy conservation measures had already been taken and in many cases these measures were implemented because of the increasing cost of energy. Eighty-seven percent of the respondents either already had double-pane windows or planned to install them. Obviously, storm windows are an energy conservation measure and do not serve any other function; however, only 53% of the public claimed they had storm windows to reduce energy costs. There is no explanation of this apparent discrepancy.

Eighty-two percent of the respondents have or plan to install weatherstripping and 70% claim this action is due to the rising cost of energy. Many people may have installed weatherstripping to make their home impervious to insects or other pests. Seventy-nine percent of the respondents also indicated that they had or would install storm doors on their homes and 54% of the respondents took this action due to the rising cost of energy; other persons may have dual purpose storm doors to allow summer ventilation. Sixty-nine percent of the respondents indicated that ceiling insulation had been or would be installed in their homes and 58% indicated that wall insulation had been or would be installed. Both of these are instances where no more than half of the people indicated the installation was because of the rising energy cost, however, there is really no other motivation other than energy conservation which will motivate a homeowner to add insulation. Relatively small percentages (14 to 35%) of the respondents had an interest in insulated window covers, fireplace inserts and hot

water heater and pipe wrapping. A great deal more public information and awareness should be generated in these areas.

The major energy conservation measures taken by the public because of rising energy costs has been turning down the thermostat in the winter months. Seventy-five percent of the respondents indicated that they had turned down the thermostat by more than five degrees and 96% of these said the reduced heat levels were due to the rising cost of energy. Similarly, 54% of the respondents have lowered their hot water heater temperatures and 97% said the temperature reduction was due to the rising cost of energy.

Over 50% of the respondents who had taken energy conservation measures in their homes, believed that these alterations resulted in a savings of at least 10% in their energy bills. Only 11% thought that the alterations had resulted in no savings at all.

Natural gas is the major source of heat in 55% of the respondents' homes and 56% of the respondents indicated that natural gas was the least expensive home heating fuel. The second most used fuel for home heat was wood at 19%, followed by electricity at 17%. Wood was not among the choice of answers for least expensive heat; therefore, the forced choice caused electricity to become rated as the second least expensive mode of home heating.

There is a very strong interest in public energy education. Over 85% of the respondents indicated there should be a public energy education program but only 67% indicated they would participate. Although the

respondents thought that utility companies and consumers should pay for this program, many respondents added they were certain the consumer would ultimately pay the bill.

While there has been a lot of news media coverage of renewable energy technologies, almost no one is currently making use of such energy sources as solar, wind, water or geothermal heat. Only 15% of the public indicated a strong familiarity with either wind or solar heating, and other renewable energy generation technologies were less well known. This is again an area of energy knowledge where the public is basically unaware and efforts to educate Montanans could be well rewarded. The obvious visibility of solar heating devices is indicated by the fact that approximately 30% of the public indicated that they knew someone of the fewer than 3% of the public actually using solar heating.

Newspapers are the leading source from which the general public obtains information on energy conservation or renewable energy technologies. This is closely followed by magazines and then television. However, the usefulness of the information does not follow this same order. Magazines are generally perceived to be very helpful, television information follows in usefulness, and newspapers are third. These ratings may be due to the type of information presented.

Nearly 50% of the homes were classified as being over 20 years of age which indicates the need for energy retrofitting and improving energy conservation measures in these older homes. Only 17% were identified as being less than five years old; consequently, there is a greater

likelihood that they were constructed using energy efficient technologies. Obviously, as energy costs continue to rise, the need to inform the general public of energy conservation measures will become increasingly acute.

Information concerning energy conservation measures must be made available to homeowners and landlords. Twenty percent of the respondents indicated that they were renting their dwelling place. Thus, one-fifth of the energy savings which could be realized is dependent on individuals who may not be paying the utility bills, or from another point of view, one-fifth of the total energy usage may be by renters who are not directly responsible for the condition of their home.

In summary, the public acknowledges a need for energy education. This need is illustrated by the extremely small percentages of persons who are aware of or who are using renewable energy sources. Somewhat less dramatic evidence of the lack of public awareness or interest in energy conservation is given by the 8% who have no knowledge of home heat loss prevention, and the over 30% who have not and do not plan to install any additional home insulation, perhaps the simplest energy conservation measure.

QUESTIONNAIRES

ENERGY OUTREACH SURVEY

GENERAL PUBLIC

My name is _____. I am calling you for the Montana Department of Natural Resources in regard to a survey concerning energy conservation measures.

[If necessary] Are you the head of the household or the wife (husband)? [If no] Could I speak with one of them?

Could you answer a few questions about your understanding of energy uses and energy conservation? This will take no more than 4 or 5 minutes.

[If no] Thank you and goodbye.

[If yes] Thank you for agreeing to help with this survey.

For each question there will be a list of responses which I will usually read for you to choose from. Do you have any questions before we begin? O.K., the first question is:

1. Some utility companies have energy audit and loan programs. Are you very familiar (1), somewhat familiar (2), or not familiar (3) with these programs?

2. Have you ever had a professional do an on-site energy audit on your home? (0=no, 1=yes)

3. If yes, was it by a utility company (1) or a private firm (2)?

4. Have you ever used a utility company loan program? (0=no, 1=yes)

Would you say you are very familiar (1), somewhat familiar (2), or not familiar (3) with the following energy technologies for residential energy conservation:

5. Appliance efficiency (hot water heater, clothes dryer, etc.)

6. Furnace efficiency

7. Prevention of home heat loss

8. Super insulation, meaning over 18 inches of fiberglass in the attic

I will now read a short list of residential energy conservation measures. Please indicate whether you have taken (1) or plan to take (2) any of these steps. [If not taken, code (0).] If taken, was it because of rising energy costs? (Code 1=yes, 0=no)

9, 10. Install double pane windows or storm windows

11, 12. Weather stripping

13, 14. Ceiling insulation

15, 16. Wall insulation

17, 18. Storm doors

19, 20. Turned down thermostats by more than 5 degrees

21, 22. Insulated window coverings

23, 24. Fireplace inserts

25, 26. Hot water heater wrap or pipe wraps

27, 28. Lowered hot water heater thermostat (during last two years)

29. What percentage of your energy consumption do you think you have saved as a result of these energy measures: none (0); less than 10% (1); more than 10% (2).

30. Which type of fuel do you think is least expensive for home heating: propane (1); natural gas (2); oil (3); electric (4)?

31. Which type of fuel is the major source of heat for your home: [1 through 4 above, wood (5), other (6)]?

32. Do you think there should be public energy education? (0=no, 1=yes)

33. If yes, then ask "Would you participate?" (0=no, 1=yes)

34. Who do you think should pay for such public energy education: state government (1); federal government (2); utility companies (3); consumers (4)?

For each of the following renewable energy technologies indicate if you are very familiar (1), somewhat familiar (2), or not familiar (3).

35. Solar heating

36. Electricity from sunlight (solar cells)

37. Wind

38. Small-scale hydropower (water-operated generators)

39. Geothermal (hot ground water for heating)

40, 41, 42. Are you using any of these at the present time: solar heating (1); solar electric (2); wind (3); hydropower (4); geothermal (5)?

43, 44, 45. Do you plan to use any (or any others) of these? (Code 1 - 5, question 40, 41, 42.)

46, 47, 48. Do you know anyone presently using any of these technologies? (Code 1 - 5, question 40, 41, 42).

49, 50, 51. From which of the following sources have you found information on conservation or renewable energy: newspapers (1); magazines (2); radio (3); TV (4); workshops (5); your job (6). [If more than three are named, ask respondent to choose the top three.]

Rate the sources which follow as very helpful (1), somewhat helpful (2), or not helpful (3) in delivering information on conservation or renewable energy.

52. Newspapers

53. Magazines

54. Radio

55. TV

56. Workshops

57. On your job

58. Are you familiar with the energy conservation program called "Twelve Ways to Turn Down Your High Energy Bills"? (0=no, 1=yes)

59. What is the approximate age of your home: under 5 years (1); 6 to 10 years (2); 11 to 20 years (3); over 20 years (4)?

60. What is the approximate size of your home: under 1200 square feet (1); 1200 to 2000 square feet (2); over 2000 square feet (3)?

61. Do you own or rent your home? (own=1, rent=2)

62. What is the age of the head of your household: under 30 (1); 30 to 45 (2); 45 to 60 (3); over 60 (4)?

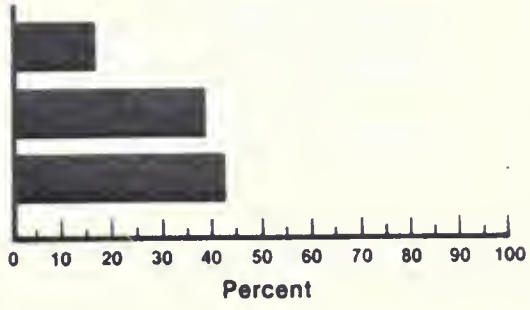
Thank you for assisting us with this survey. Your cooperation has been appreciated and will certainly be useful in completing a profile of Montana's energy conservation priorities.

SURVEY HISTOGRAMS
ENERGY OUTREACH SURVEY
GENERAL PUBLIC

Q-1 Some utility companies have energy audit and loan programs. Are you very familiar, somewhat familiar, or not familiar with these programs?

Responses

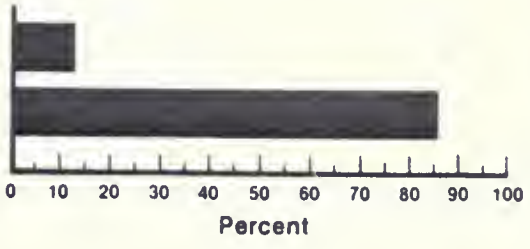
Choice of Answers	Number	Percent
VERY FAMILIAR	103	17.1
SOMEWHAT FAMILIAR	238	39.6
NOT FAMILIAR	260	43.3
	601	100.0



Q-2 Have you ever had a professional do an onsite energy audit on your home?

Responses

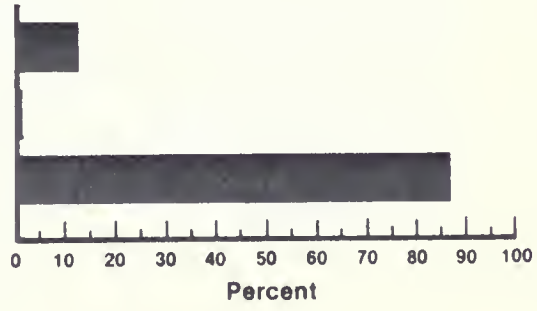
Choice of Answers	Number	Percent
YES	82	13.6
NO	519	86.4
	601	100.0



Q-3 If YES, was it by a utility company or a private firm?

Responses

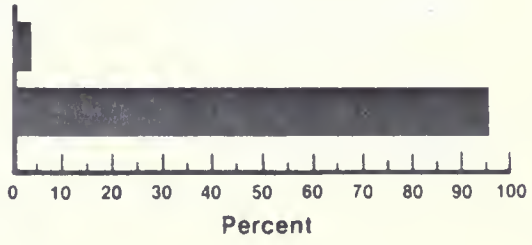
Choice of Answers	Number	Percent
UTILITY COMPANY	78	13.0
PRIVATE FIRM	4	.7
NO AUDIT	519	86.4
	601	100.0



Q-4 Have you ever used a utility company loan program?

Responses

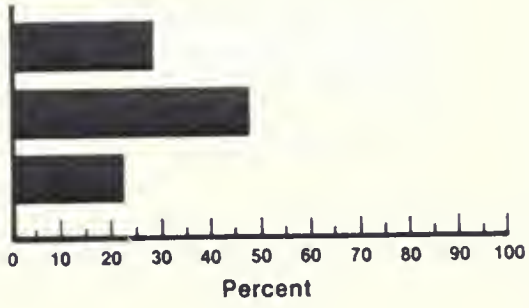
Choice of Answers	Number	Percent
YES	26	4.3
NO	575	95.7
	601	100.0



Q-5 Would you say you are very familiar, somewhat familiar, or not familiar with the following energy technology for residential energy conservation -- appliance efficiency (hot water heater, clothes dryer, etc.)?

Responses

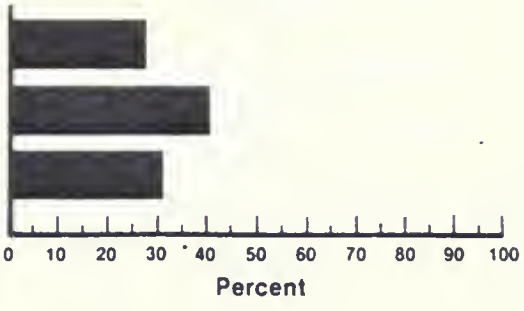
Choice of Answers	Number	Percent
VERY FAMILIAR	173	28.8
SOMEWHAT FAMILIAR	290	48.3
NOT FAMILIAR	138	23.0
	601	100.0



Q-6 Would you say you are very familiar, somewhat familiar, or not familiar with the following energy technology for residential energy conservation -- furnace efficiency?

Responses

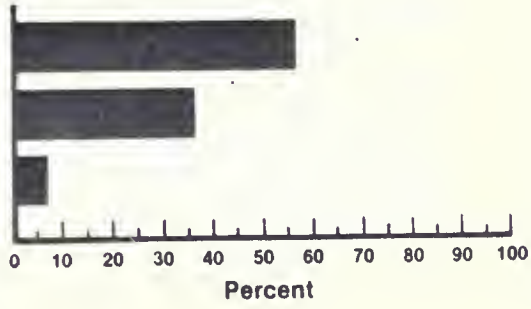
Choice of Answers	Number	Percent
VERY FAMILIAR	171	28.5
SOMEWHAT FAMILIAR	245	40.8
NOT FAMILIAR	185	30.8
	601	100.0



Q-7 Would you say you are very familiar, somewhat familiar, or not familiar with the following energy technology for residential energy conservation -- prevention of home heat loss?

Responses

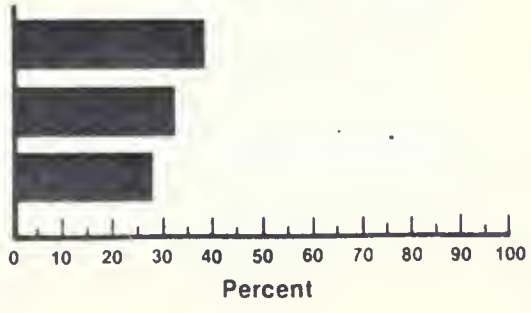
Choice of Answers	Number	Percent
VERY FAMILIAR	341	56.7
SOMEWHAT FAMILIAR	214	35.6
NOT FAMILIAR	46	7.7
	601	100.0



Q-8 Would you say you are very familiar, somewhat familiar, or not familiar with the following energy technology for residential energy conservation -- super insulation (meaning over 18 inches of fiberglass in the attic)?

Responses

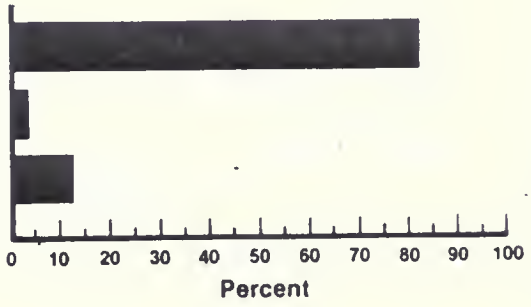
Choice of Answers	Number	Percent
VERY FAMILIAR	233	38.8
SOMEWHAT FAMILIAR	195	32.4
NOT FAMILIAR	173	28.8
	601	100.0



Q-9 Please indicate whether you have taken or plan to take the following step -- install double-pane windows or storm windows.

Responses

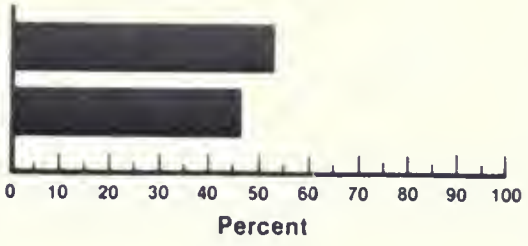
Choice of Answers	Number	Percent
TAKEN	496	82.5
PLAN TO TAKE	26	4.3
NOT TAKEN	79	13.1
	601	100.0



Q-10 If taken, was it because of rising energy costs?

Responses

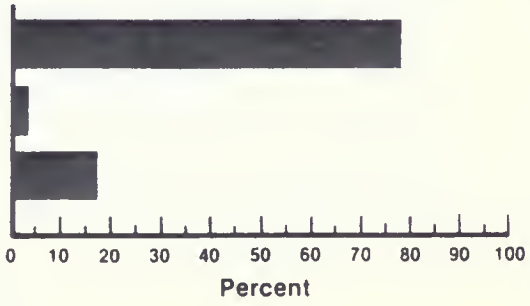
Choice of Answers	Number	Percent
YES	265	53.4
NO	231	46.6
	496	100.0



Q-11 Please indicate whether you have taken or plan to take the following step -- weather stripping.

Responses

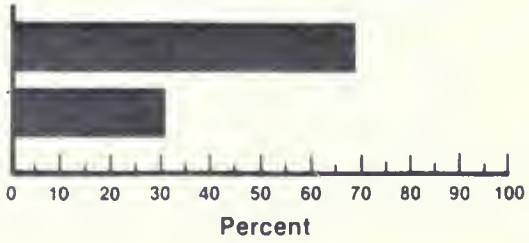
Choice of Answers	Number	Percent
TAKEN	471	78.4
PLAN TO TAKE	24	4.0
NOT TAKEN	106	17.6
	601	100.0



Q-12 If taken, was it because of rising energy costs?

Responses

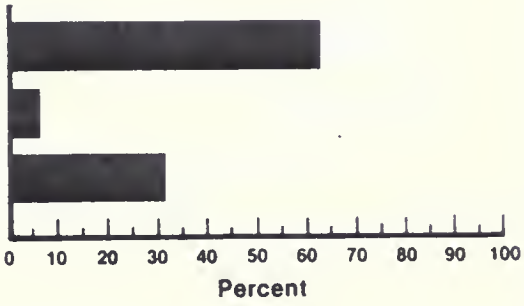
Choice of Answers	Number	Percent
YES	327	69.4
NO	144	30.6
	471	100.0



Q-13 Please indicate whether you have taken or plan to take the following step -- ceiling insulation.

Responses

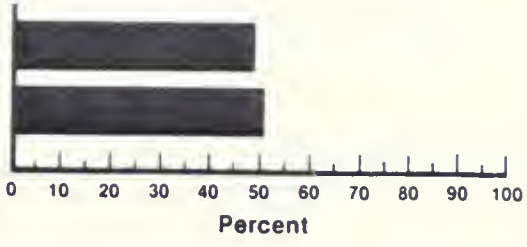
Choice of Answers	Number	Percent
TAKEN	382	63.6
PLAN TO TAKE	36	6.0
NOT TAKEN	183	30.4
	601	100.0



Q-14 If taken, was it because of rising energy costs?

Responses

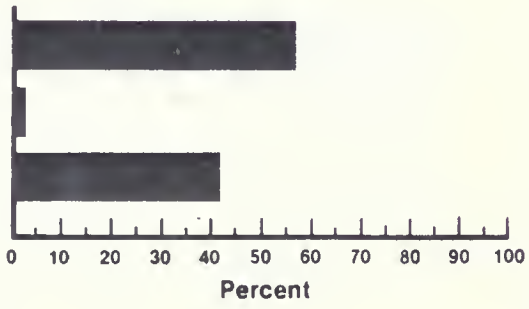
Choice of Answers	Number	Percent
YES	188	49.2
NO	194	50.8
	382	100.0



Q-15 Please indicate whether you have taken or plan to take the following step -- wall insulation.

Responses

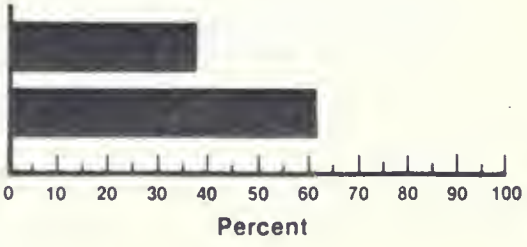
Choice of Answers	Number	Percent
TAKEN	334	55.6
PLAN TO TAKE	14	2.3
NOT TAKEN	253	42.1
	601	100.0



Q-16 If taken, was it because of rising energy costs?

Responses

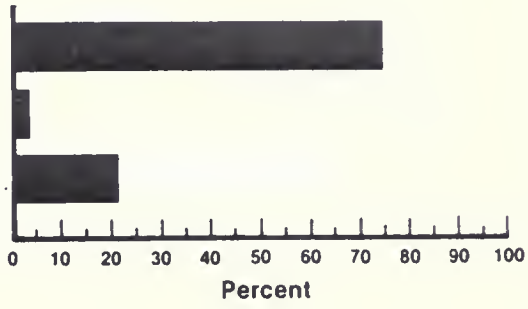
Choice of Answers	Number	Percent
YES	126	37.7
NO	208	62.3
	334	100.0



Q-17 Please indicate whether you have taken or plan to take the following step -- storm doors.

Responses

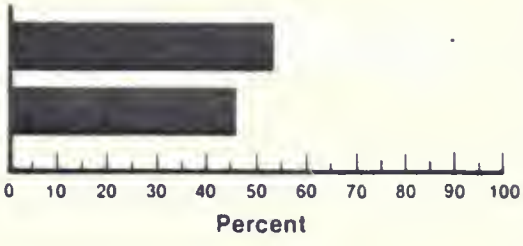
Choice of Answers	Number	Percent
TAKEN	449	74.7
PLAN TO TAKE	24	4.0
NOT TAKEN	128	21.3
	601	100.0



Q-18 If taken, was it because of rising energy costs?

Responses

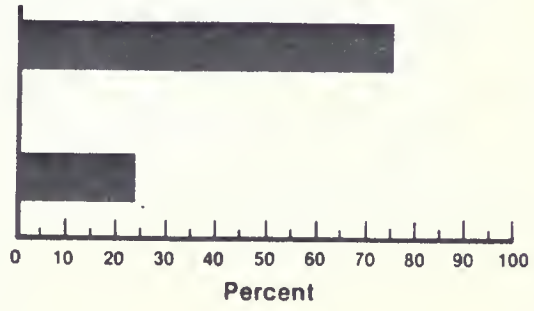
Choice of Answers	Number	Percent
YES	242	53.9
NO	207	46.1
	449	100.0



Q-19 Please indicate whether you have taken or plan to take the following step -- turned down thermostat by more than 5 degrees.

Responses

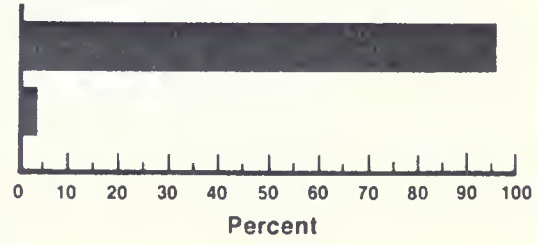
Choice of Answers	Number	Percent
TAKEN	452	75.2
PLAN TO TAKE	0	0.0
NOT TAKEN	149	24.8
	601	100.0



Q-20 If taken, was it because of rising energy costs?

Responses

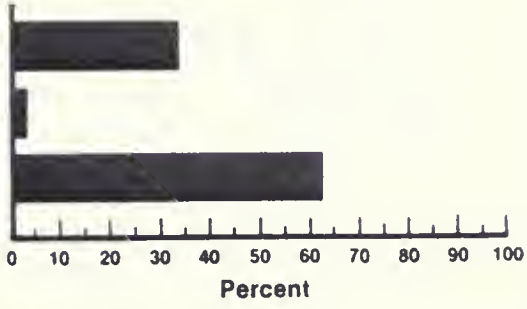
Choice of Answers	Number	Percent
YES	434	96.0
NO	18	4.0
	452	100.0



Q-21 Please indicate whether you have taken or plan to take the following step -- insulated window covers.

Responses

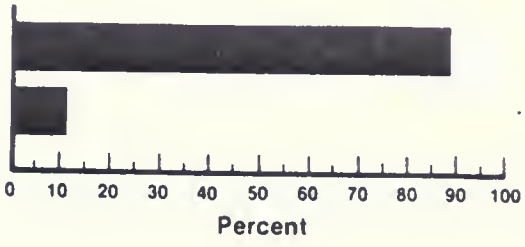
Choice of Answers	Number	Percent
TAKEN	205	34.1
PLAN TO TAKE	18	3.0
NOT TAKEN	378	62.9
	601	100.0



Q-22 If taken, was it because of rising energy costs?

Responses

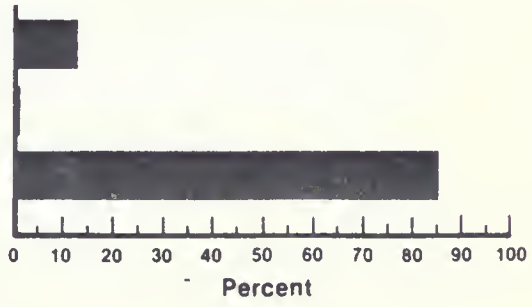
Choice of Answers	Number	Percent
YES	182	88.8
NO	23	11.2
	205	100.0



Q-23 Please indicate whether you have taken or plan to take the following step -- fireplace inserts.

Responses

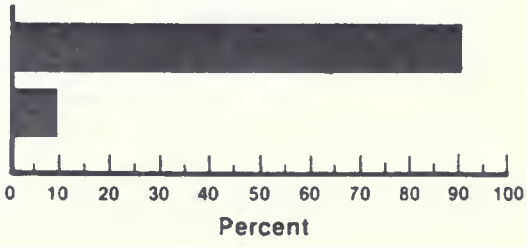
Choice of Answers	Number	Percent
TAKEN	82	13.6
PLAN TO TAKE	5	.8
NOT TAKEN	514	85.5
	601	100.0



Q-24 If taken, was it because of rising energy costs?

Responses

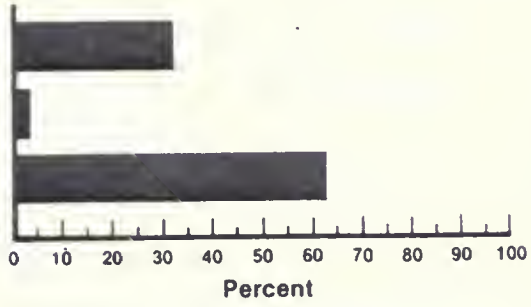
Choice of Answers	Number	Percent
YES	74	90.2
NO	8	9.8
	82	100.0



Q-25 Please indicate whether you have taken or plan to take the following step -- hot water heater wrap or pipe wraps.

Responses

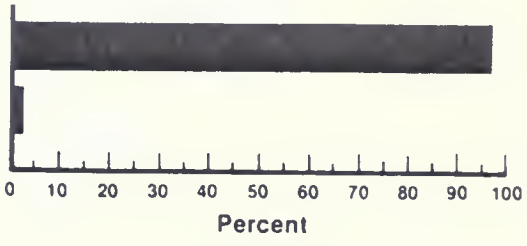
Choice of Answers	Number	Percent
TAKEN	200	33.3
PLAN TO TAKE	19	3.2
NOT TAKEN	382	63.6
	601	100.0



Q-26 If taken, was it because of rising energy costs?

Responses

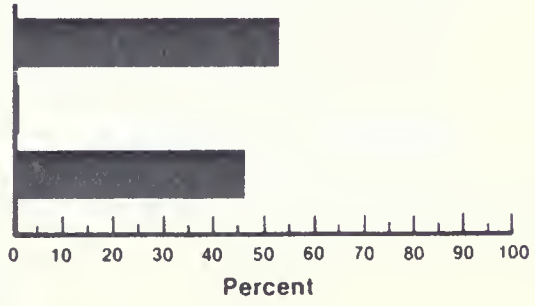
Choice of Answers	Number	Percent
YES	195	97.5
NO	5	2.5
	200	100.0



Q-27 Please indicate whether you have taken or plan to take the following step -- lowered hot water heater thermostat (during last 2 years).

Responses

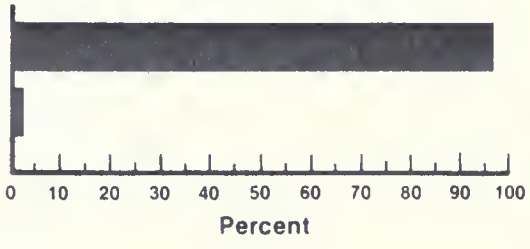
Choice of Answers	Number	Percent
TAKEN	322	53.6
PLAN TO TAKE	1	.2
NOT TAKEN	278	46.3
	601	100.0



Q-28 If taken, was it because of rising energy costs?

Responses

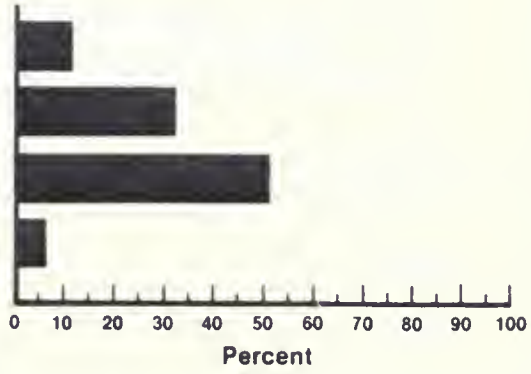
Choice of Answers	Number	Percent
YES	312	96.9
NO	10	3.1
	322	100.0



Q-29 What percentage of your energy consumption do you think you have saved as a result of these energy measures? (Note: See energy measures in Q-9, Q-11, Q-13, Q-15, Q-17, Q-19, Q-21, Q-23, Q-25, Q-27)

Responses

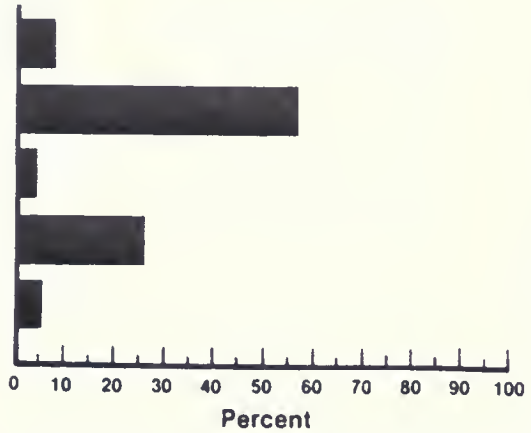
Choice of Answers	Number	Percent
NONE	67	11.1
LESS THAN 10%	195	32.4
MORE THAN 10%	302	50.2
DON'T KNOW	37	6.2
	601	100.0



Q-30 Which type of fuel do you think is least expensive for home heating?

Responses

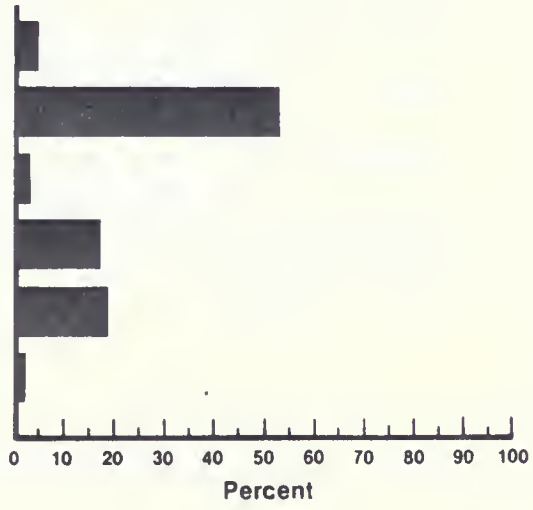
Choice of Answers	Number	Percent
PROPANE	52	8.7
NATURAL GAS	338	56.2
OIL	28	4.7
ELECTRIC	151	25.1
DON'T KNOW	32	5.3
	601	100.0



Q-31 Which type of fuel is the major source of heat for your home?

Responses

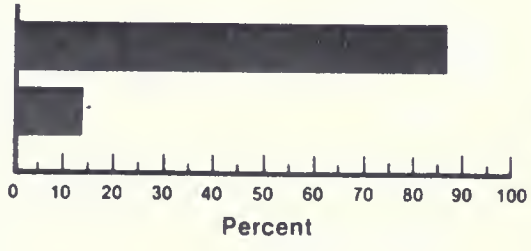
Choice of Answers	Number	Percent
PROPANE	27	4.5
NATURAL GAS	327	54.4
OIL	19	3.2
ELECTRIC	104	17.3
WOOD	114	19.0
OTHER	10	1.7
	601	100.0



Q-32 Do you feel there should be public energy education?

Responses

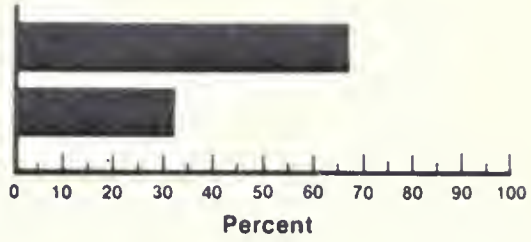
Choice of Answers	Number	Percent
YES	518	86.2
NO	83	13.8
	601	100.0



Q-33 If YES, would you participate?

Responses

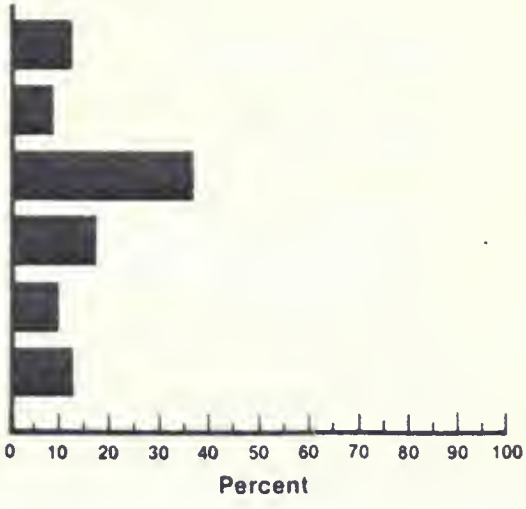
Choice of Answers	Number	Percent
YES	405	67.4
NO	196	32.6
	601	100.0



Q-34 Who do you think should pay for such public energy education?

Responses

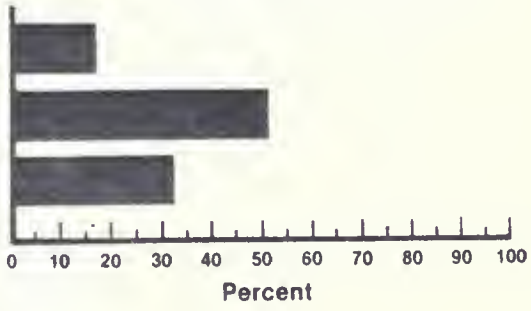
Choice of Answers	Number	Percent
STATE GOVERNMENT	77	12.8
FEDERAL GOVERNMENT	55	9.2
UTILITY COMPANIES	216	35.9
CONSUMERS	105	17.5
MULTIPLE RESPONSE	63	10.5
DON'T KNOW	85	14.1
	601	100.0



Q-35 Please indicate if you are very familiar, somewhat familiar, or not familiar with the following renewable energy technology -- solar heating.

Responses

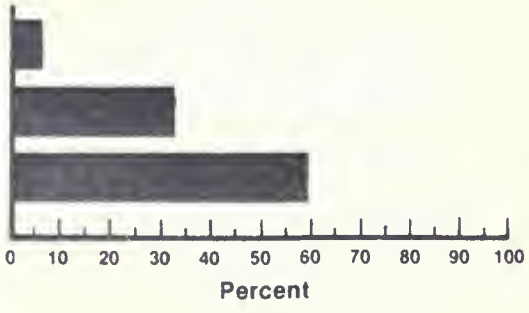
Choice of Answers	Number	Percent
VERY FAMILIAR	99	16.5
SOMEWHAT FAMILIAR	303	50.4
NOT FAMILIAR	199	33.1
	601	100.0



Q-36 Please indicate if you are very familiar, somewhat familiar, or not familiar with the following renewable energy technology -- electricity from sunlight (solar cells).

Responses

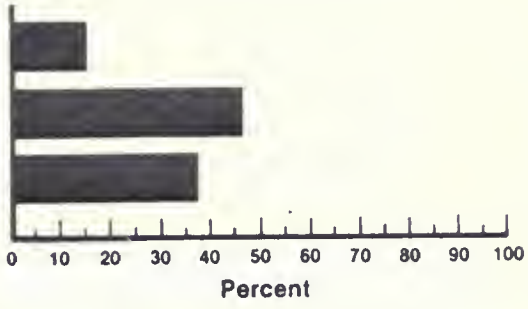
Choice of Answers	Number	Percent
VERY FAMILIAR	42	7.0
SOMEWHAT FAMILIAR	200	33.3
NOT FAMILIAR	359	59.8
	601	100.0



Q-37 Please indicate if you are very familiar, somewhat familiar, or not familiar with the following renewable energy technology -- wind.

Responses

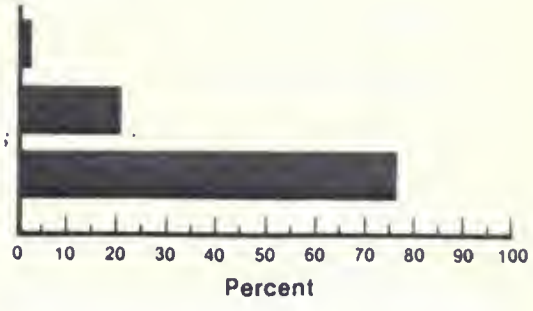
Choice of Answers	Number	Percent
VERY FAMILIAR	90	15.0
SOMEWHAT FAMILIAR	281	46.8
NOT FAMILIAR	230	38.3
	601	100.0



Q-38 Please indicate if you are very familiar, somewhat familiar, or not familiar with the following renewable energy technology -- small-scale hydropower (water-operated generators).

Responses

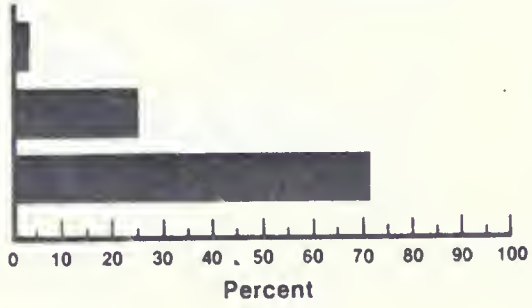
Choice of Answers	Number	Percent
VERY FAMILIAR	19	3.2
SOMEWHAT FAMILIAR	123	20.5
NOT FAMILIAR	459	76.4
	601	100.0



Q-39 Please indicate if you are very familiar, somewhat familiar, or not familiar with the following renewable energy technology -- geothermal (hot ground water for heating).

Responses

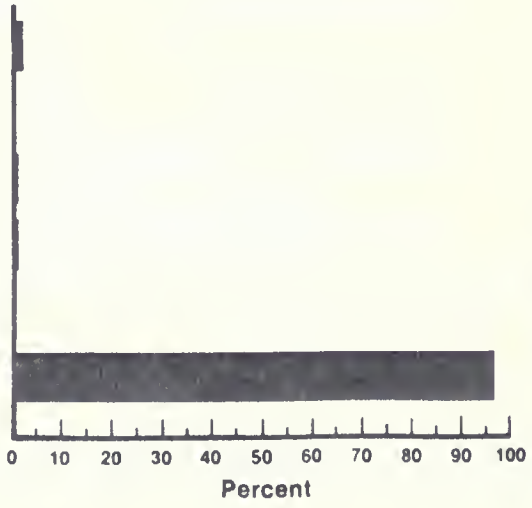
Choice of Answers	Number	Percent
VERY FAMILIAR	25	4.2
SOMEWHAT FAMILIAR	152	25.3
NOT FAMILIAR	424	70.6
	601	100.0



Q-40 Are you using any of the following at the present time? (First choice)

Responses

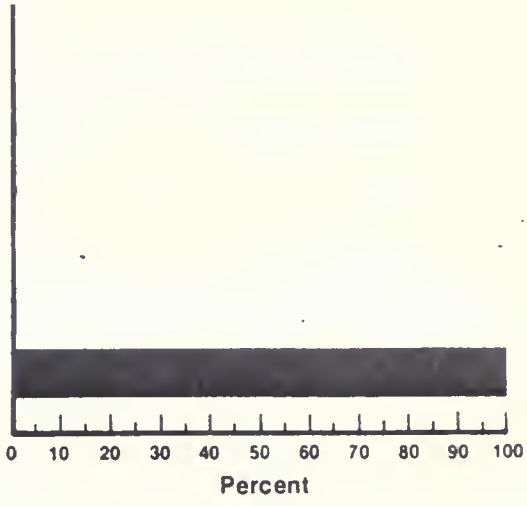
Choice of Answers	Number	Percent
SOLAR HEATING	15	2.5
SOLAR ELECTRIC	0	0.0
WIND	2	.3
HYDROPOWER	1	.2
GEOTHERMAL	0	0.0
NOT USING	583	97.0
	601	100.0



Q-41 Are you using any of the following at the present time?
(Second choice)

Responses

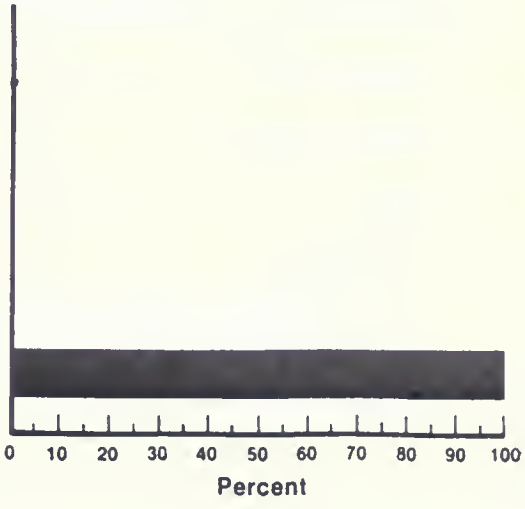
Choice of Answers	Number	Percent
SOLAR HEATING	0	0.0
SOLAR ELECTRIC	0	0.0
WIND	0	0.0
HYDROPOWER	0	0.0
GEOTHERMAL	0	0.0
NOT USING	601	100.0
	601	100.0



Q-42 Are you using any of the following at the present time?
(Third choice)

Responses

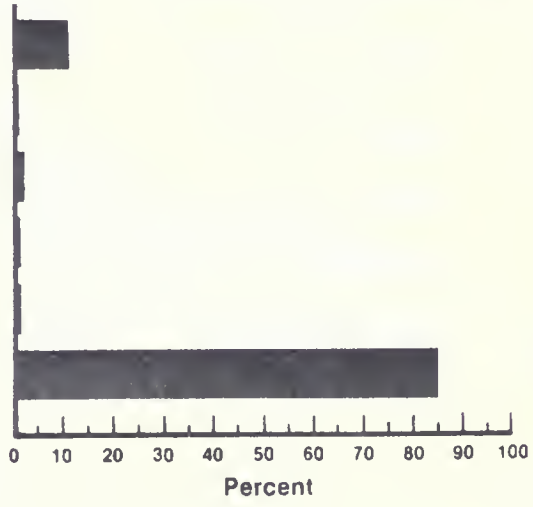
Choice of Answers	Number	Percent
SOLAR HEATING	0	0.0
SOLAR ELECTRIC	0	0.0
WIND	0	0.0
HYDROPOWER	0	0.0
GEOTHERMAL	0	0.0
NOT USING	601	100.0
	601	100.0



Q-43 Do you plan to use any (or any others) of these? (First choice)

Responses

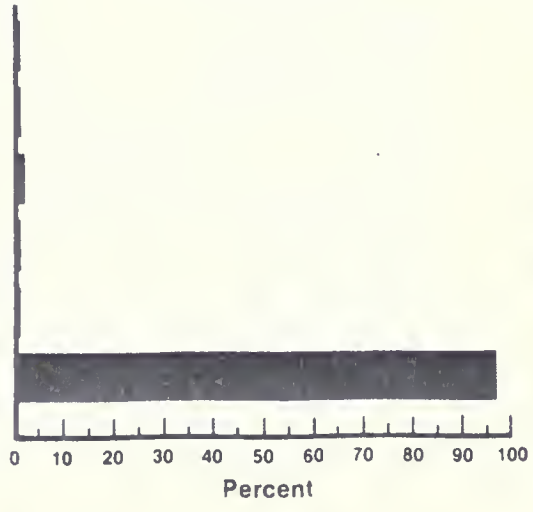
Choice of Answers	Number	Percent
SOLAR HEATING	77	12.8
SOLAR ELECTRIC	1	.2
WIND	10	1.7
HYDROPOWER	2	.3
GEOTHERMAL	1	.2
DO NOT PLAN TO USE	510	84.9
	601	100.0



Q-44 Do you plan to use any (or any others) of these? (Second choice)

Responses

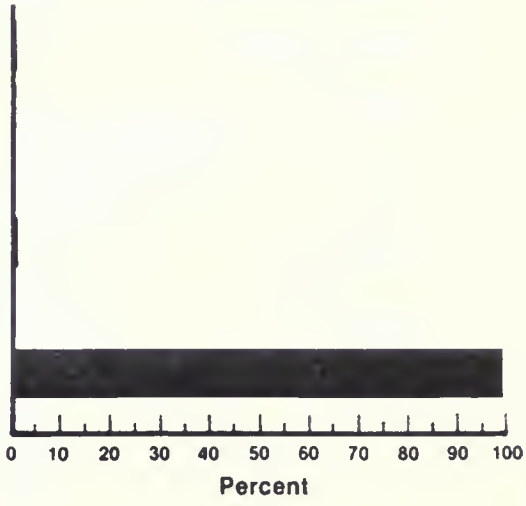
Choice of Answers	Number	Percent
SOLAR HEATING	3	.5
SOLAR ELECTRIC	4	.7
WIND	7	1.2
HYDROPOWER	1	.2
GEOTHERMAL	2	.3
DO NOT PLAN TO USE	584	97.2
	601	100.0



Q-45 Do you plan to use any (or any others) of these? (Third choice)

Responses

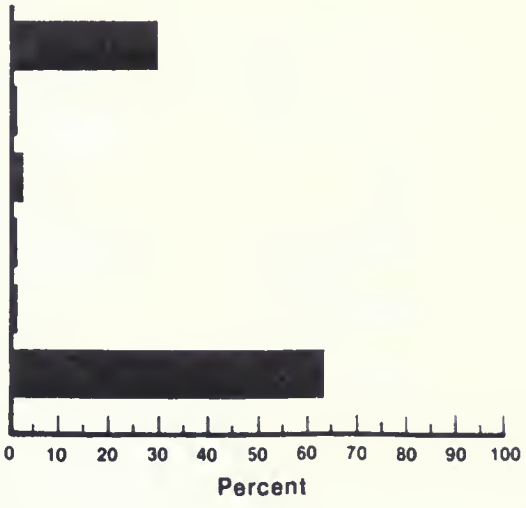
Choice of Answers	Number	Percent
SOLAR HEATING	1	.2
SOLAR ELECTRIC	0	0.0
WIND	0	0.0
HYDROPOWER	1	.2
GEOTHERMAL	0	0.0
DO NOT PLAN TO USE	599	99.7
	601	100.0



Q-46 Do you know anyone presently using any of these technologies? (First choice)

Responses

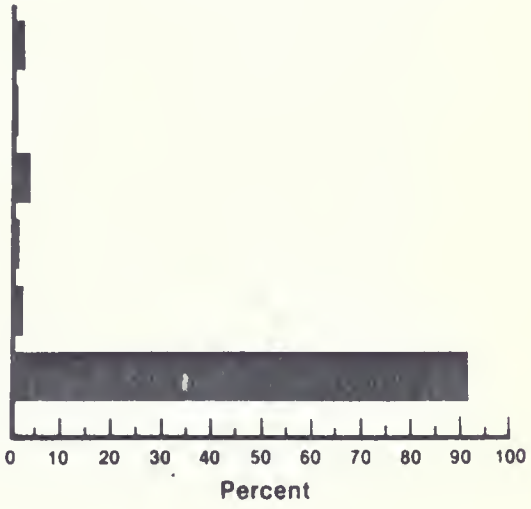
Choice of Answers	Number	Percent
SOLAR HEATING	179	29.8
SOLAR ELECTRIC	4	.7
WIND	18	3.0
HYDROPOWER	7	1.2
GEOTHERMAL	7	1.2
DON'T KNOW ANYONE USING	386	64.2
	601	100.0



Q-47 Do you know anyone presently using any of these technologies? (Second choice)

Responses

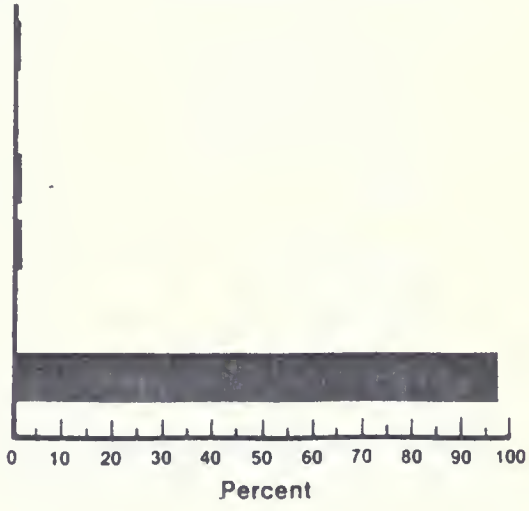
Choice of Answers	Number	Percent
SOLAR HEATING	10	1.7
SOLAR ELECTRIC	1	.2
WIND	25	4.2
HYDROPOWER	4	.7
GEOTHERMAL	11	1.8
DON'T KNOW ANYONE USING	550	91.5
	601	100.0



Q-48 Do you know anyone presently using any of these technologies? (Third choice)

Responses

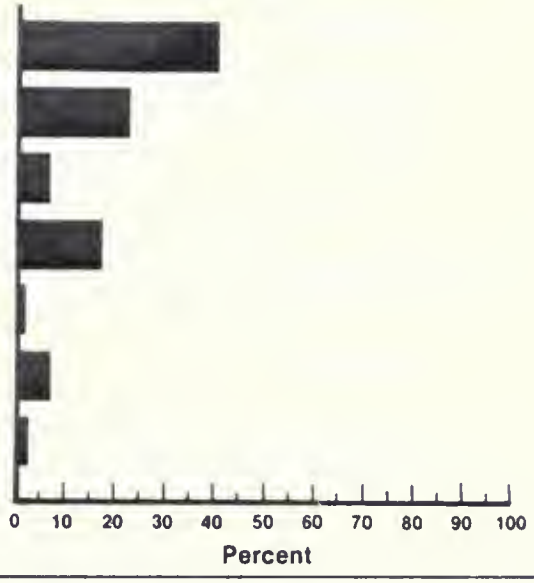
Choice of Answers	Number	Percent
SOLAR HEATING	1	.2
SOLAR ELECTRIC	0	0.0
WIND	3	.5
HYDROPOWER	5	.8
GEOTHERMAL	0	0.0
DON'T KNOW ANYONE USING	592	98.5
	601	100.0



Q-49 From which of the following sources have you found information on conservation or renewable energy? (First choice)

Responses

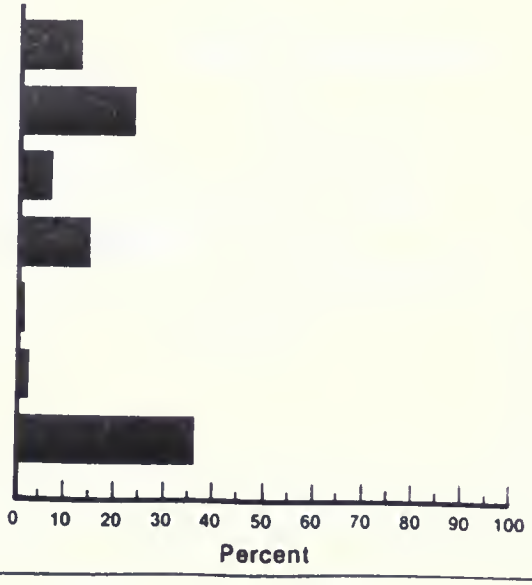
Choice of Answers	Number	Percent
NEWSPAPERS	236	39.3
MAGAZINES	135	22.5
RADIO	45	7.5
TV	107	17.8
WORKSHOPS	12	2.0
YOUR JOB	47	7.8
HAVE NOT FOUND INFORMATION	19	3.2
	601	100.0



Q-50 From which of the following sources have you found information on conservation or renewable energy? (Second choice)

Responses

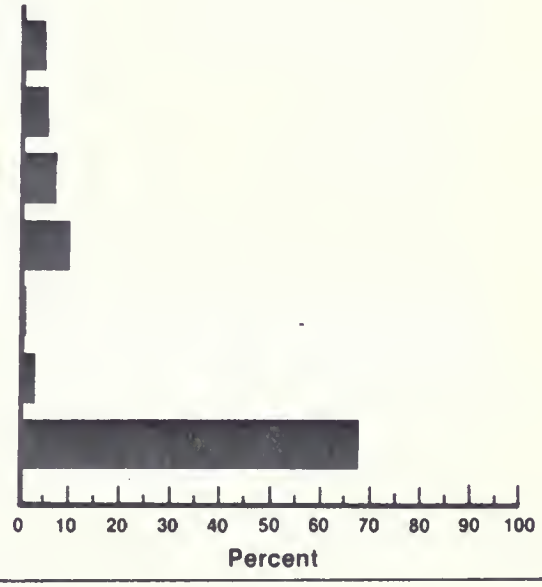
Choice of Answers	Number	Percent
NEWSPAPERS	83	13.8
MAGAZINES	142	23.6
RADIO	40	6.7
TV	90	15.0
WORKSHOPS	10	1.7
YOUR JOB	18	3.0
HAVE NOT FOUND INFORMATION	218	36.3
	601	100.0



Q-51 From which of the following sources have you found information on conservation or renewable energy? (Third choice)

Responses

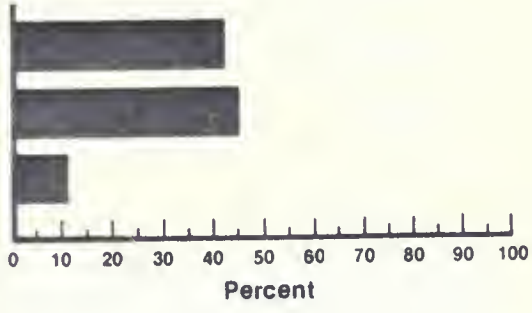
Choice of Answers	Number	Percent
NEWSPAPERS	30	5.0
MAGAZINES	33	5.5
RADIO	41	6.8
TV	63	10.5
WORKSHOPS	3	.5
YOUR JOB	19	3.2
HAVE NOT FOUND INFORMATION	412	68.6
	601	100.0



Q-52 Do you think newspapers are very helpful, somewhat helpful, or not helpful in delivering information on conservation or renewable energy?

Responses

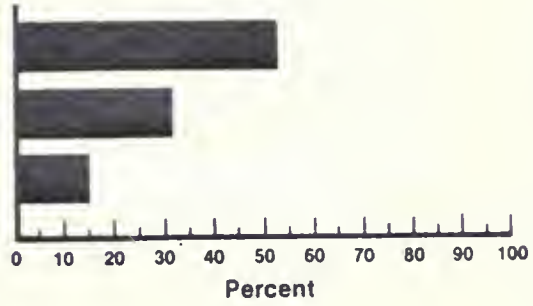
Choice of Answers	Number	Percent
VERY HELPFUL	260	43.3
SOMEWHAT HELPFUL	273	45.4
NOT HELPFUL	68	11.3
	601	100.0



Q-53 Do you think magazines are very helpful, somewhat helpful, or not helpful in delivering information on conservation or renewable energy?

Responses

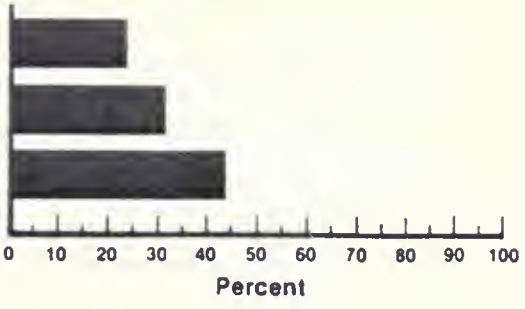
Choice of Answers	Number	Percent
VERY HELPFUL	324	53.9
SOMEWHAT HELPFUL	187	31.1
NOT HELPFUL	90	15.0
	601	100.0



Q-54 Do you think the radio is very helpful, somewhat helpful, or not helpful in delivering information on conservation or renewable energy?

Responses

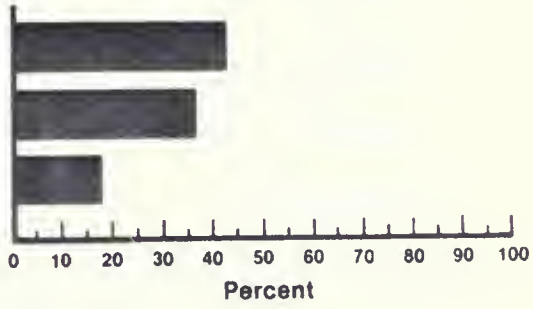
Choice of Answers	Number	Percent
VERY HELPFUL	147	24.5
SOMEWHAT HELPFUL	187	31.1
NOT HELPFUL	267	44.5
	601	100.0



Q-55 Do you think the TV is very helpful, somewhat helpful, or not helpful in delivering information on conservation or renewable energy?

Responses

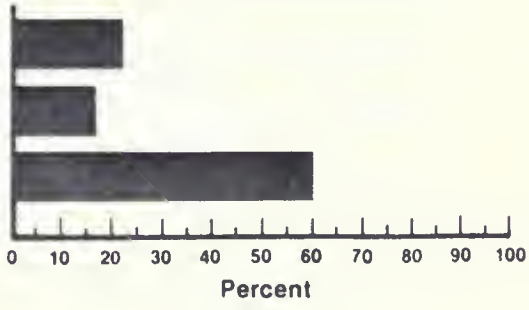
Choice of Answers	Number	Percent
VERY HELPFUL	264	43.9
SOMEWHAT HELPFUL	226	37.6
NOT HELPFUL	111	18.5
	601	100.0



Q-56 Do you think workshops are very helpful, somewhat helpful, or not helpful in delivering information on conservation or renewable energy?

Responses

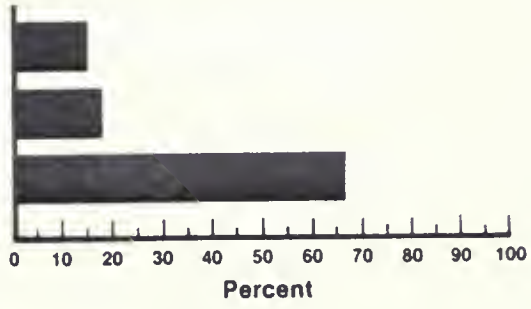
Choice of Answers	Number	Percent
VERY HELPFUL	138	23.0
SOMEWHAT HELPFUL	102	17.0
NOT HELPFUL	361	60.1
	601	100.0



Q-57 Do you think your job is very helpful, somewhat helpful, or not helpful in delivering information on conservation or renewable energy?

Responses

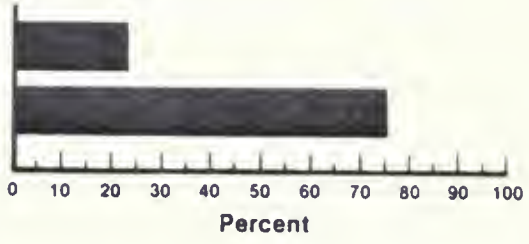
Choice of Answers	Number	Percent
VERY HELPFUL	91	15.1
SOMEWHAT HELPFUL	112	18.6
NOT HELPFUL	398	66.3
	601	100.0



Q-58 Are you familiar with the energy conservation program called "Twelve Ways to Turn Down Your High Energy Bills"?

Responses

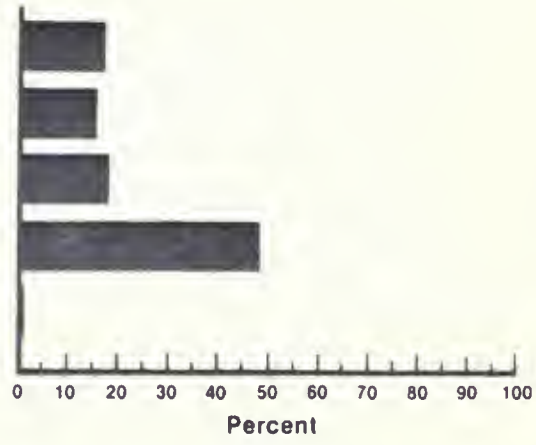
Choice of Answers	Number	Percent
YES	148	24.6
NO	453	75.4
	601	100.0



Q-59 What is the approximate age of your home?

Responses

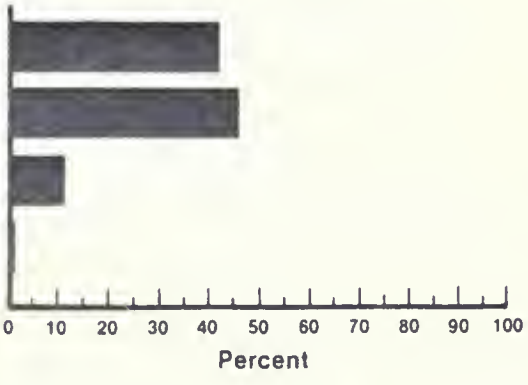
Choice of Answers	Number	Percent
UNDER 5 YEARS	101	16.8
6 TO 10 YEARS	94	15.6
11 TO 20 YEARS	108	18.0
OVER 20 YEARS	293	48.8
DON'T KNOW	5	.8
	601	100.0



Q-60 What is the approximate size of your home?

Responses

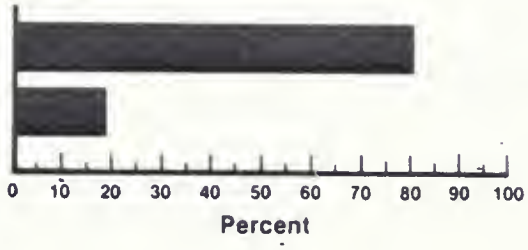
Choice of Answers	Number	Percent
UNDER 1200 SQUARE FEET	255	42.4
1200 TO 2000 SQUARE FEET	278	46.3
OVER 2000 SQUARE FEET	64	10.6
DON'T KNOW	4	.7
	601	100.0



Q-61 Do you own or rent your home?

Responses

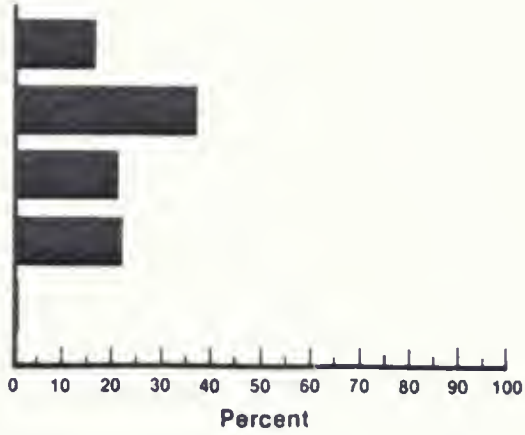
Choice of Answers	Number	Percent
OWN	483	80.4
RENT	118	19.6
	601	100.0



Q-62 What is the age of the head of your household?

Responses

Choice of Answers	Number	Percent
UNDER 30	109	18.1
30 TO 45	228	37.9
45 TO 60	130	21.6
OVER 60	133	22.1
NO RESPONSE	1	.2
	601	100.0



APPENDIX B cont'd.

FARMERS AND RANCHERS

1. SUMMARY OF RESULTS

2. QUESTIONNAIRES

3. SURVEY HISTOGRAMS

SUMMARY OF RESULTS

ENERGY OUTREACH SURVEY

FARMERS AND RANCHERS

The response from the farmers and ranchers to the mail-out survey was exceptionally good. This strong response indicates a high level of interest in energy conservation and an awareness of the potential savings through more efficient energy use. The statistical inferences drawn from this response also have enhanced reliability.

Montana farmers and ranchers indicated a strong familiarity (78%) with wind generated electricity and with distilling ethanol from grain (55%). In the areas of hydropower, crop residue fuel, ethanol protein by-products, and manure generated methane, their level of awareness was approximately 35%. Thus, they seem to be well informed concerning the most obvious and widely available sources of alternative energy generation on farms and ranches. In spite of this knowledge, only 10% are using wind generated electricity, 3% are using ethanol distilled from grain, and almost none are using any other type of alternative energy production technology. Furthermore, 65% have no plans to use wind generated electricity and even fewer plan to use any other type of energy generation.

Over 75% of the farmers and ranchers are aware that electricity they produce could be sold to their local utility. This fact has apparently not influenced their decision to ignore the possibilities for generating their own electricity. Quite possibly, other factors not investigated by this survey such as cost of production, limited availability of equipment, and adequately trained technicians, have influ-

enced their decisions to be uninvolved at this time.

In the areas of wind-powered stockwater pumps and efficient farm equipment sizing, the respondents not only rated their familiarity quite high (70-75%) but also indicated a high degree of present use (25-35%). Nevertheless, over 60% indicated they did not plan to use wind-powered stockwater pumps. Thus, there is considerable opportunity to increase this use of wind-powered pumps and increase the use of energy efficient irrigation systems since over 60% of the respondents also indicated they did not intend to use these either. Of course, this 60% should be reduced by the number of farmers and ranchers who will not use irrigation of any kind.

Very high percentages (65-75%) of farmers and ranchers rated these three technologies (wind pumps, efficient machine sizes, and efficient irrigation) as being highly cost-effective. Approximately 60% rated wind-generated electricity as cost-effective but a much smaller percentage (35%) rated hydropower and manure methane as cost-effective.

Farmers and ranchers clearly rated the Montana Farmer-Stockman as the most informative source for information on conservation and renewable energy. Cited by 84% of the respondents, this publication exceeded the next most popular sources, the Montana Rural Electric News and daily newspapers, by approximately 20%. The radio and television stations were also cited by over 50% of the respondents as sources of information on conservation of energy.

There is a large marketing opportunity for information, technology, and implementation of energy conservation and renewable energy con-

cepts on the farms and ranches in Montana. This survey has not only identified the present levels of knowledge and implementation but has further identified the most important sources from which this information is presently being obtained by rural people.

TED SCHWINDEN
GOVERNOR

STATE OF MONTANA
DEPARTMENT OF AGRICULTURE
AGRICULTURE/LIVESTOCK BLDG
CAPITOL STATION
HELENA, MONTANA 59620

TELEPHONE
AREA CODE 406
449 3144

W. GORDON McOMBER
DIRECTOR

November 17, 1982

Dear Farmers and Ranchers:

The Montana Department of Natural Resources and Conservation (DNRC) is conducting a survey to assist in targeting its information, education, and outreach activities for renewable energy conservation. Your busineas has been randomly selected to be a part of this survey.

I encourage you to take s few minutes to complete the attached questionnaire since, in the end, we stand to be the beneficiary of the improved delivery of government services.

Please accept my personal appreciation for your cooperation with this worthwhile project.

Sincerely,

W. Gordon McOmber

W. Gordon McOmber
Director

An Affirmative Action / Equal Employment Opportunity Employer

QUESTIONNAIRES

INSTRUCTIONS: Please put an "X" in the appropriate box for each question.

Q-1 How would you rate your knowledge of the following energy technologies?

	VERY FAMILIAR	SOMEWHAT FAMILIAR	NOT FAMILIAR
A. ELECTRICITY	1	2	3
1) WIND GENERATION	☐	☐	☐
2) SMALL SCALE HYDROPOWER	☐	☐	☐
B. LIQUID/GASEOUS FUELS			
1) ETHANOL FROM GRAIN	☐	☐	☐
2) CROP RESIDUE	☐	☐	☐
3) HIGH PROTEIN BY-PRODUCTS FROM ETHANOL	☐	☐	☐
4) METHANE FROM MANURE	☐	☐	☐

Q-2 Which of the following alternative energy production technologies have you used or do you plan to use?

	USED/ NOW USING	PLAN TO USE	DO NOT PLAN TO USE
A. ELECTRICITY	1	2	3
1) WIND GENERATION	☐	☐	☐
2) SMALL SCALE HYDROPOWER	☐	☐	☐
B. LIQUID/GASEOUS FUELS			
1) ETHANOL FROM GRAIN OR CROP RESIDUE	☐	☐	☐
2) HIGH PROTEIN BY-PRODUCTS FROM ETHANOL	☐	☐	☐
3) METHANE FROM MANURE	☐	☐	☐

Q-3 Are you aware that any electricity produced on your farm or ranch may be sold to your local utility or cooperative?

1) YES ☐

2) NO ☐

Q-4 How do you rate your knowledge of the following conservation or renewable energy technologies?

	VERY FAMILIAR	SOMEWHAT FAMILIAR	NOT FAMILIAR	
	1	2	3	
1) WIND POWERED MECHANICAL STOCK WATER PUMPS	☐	☐	☐	
2) EFFICIENT FARM EQUIPMENT SIZING	☐	☐	☐	
3) ENERGY EFFICIENT IRRIGATION SYSTEMS (i.e., pump sizing, timed use, maintenance)	☐	☐	☐	

Q-5 Which of the following conservation or renewable energy technologies have you used or do you plan to use?

	USED/ NOW USING	PLAN TO USE	DO NOT PLAN TO USE	
	1	2	3	
1) WIND POWERED MECHANICAL STOCKWATER PUMPS	☐	☐	☐	
2) EFFICIENT FARM EQUIPMENT SIZING	☐	☐	☐	
3) ENERGY EFFICIENT IRRIGATION SYSTEMS (i.e., pump sizing, timed use, maintenance)	☐	☐	☐	

Q-6 How would you rate the following conservation or renewable energy technologies to reduce rising gasoline, diesel, natural gas, or electrical costs?

		COST EFFECTIVE 1	NOT COST EFFECTIVE 2	
1)	WIND POWERED MECHANICAL STOCKWATER PUMPS	☐	☐	
2)	EFFICIENT FARM MACHINE SIZING	☐	☐	
3)	ENERGY EFFICIENT IRRIGATION SYSTEMS (i.e., pump sizing, timed use, maintenance)	☐	☐	
4)	SMALL SCALE HYDROPOWER	☐	☐	
5)	WIND GENERATED ELECTRICITY	☐	☐	
6)	METHANE FROM MANURE	☐	☐	

Q-7 Have you found information on conservation or renewable energy from any of the following sources?

		YES 1	NO 2	
1)	MONTANA RURAL ELECTRIC NEWS	☐	☐	
2)	MONTANA GRASSROOTS	☐	☐	
3)	MONTANA FARMER-STOCKMAN	☐	☐	
4)	MONTANA/WYOMING AGRI- NEWS	☐	☐	
5)	MONTANA WHEAT SCOOP	☐	☐	
6)	DAILY NEWSPAPERS	☐	☐	
7)	WEEKLY NEWSPAPERS	☐	☐	
8)	RADIO	☐	☐	
9)	TV	☐	☐	
10)	ASSOCIATION NEWSLETTERS	☐	☐	
11)	ASSOCIATION MEETINGS	☐	☐	

Q-8 Which of the following sources do you think could best be used by the Montana Department of Natural Resources to deliver information on conservation or renewable energy?

	VERY HELPFUL 1	SOMEWHAT HELPFUL 2	NOT HELPFUL 3
1) MONTANA RURAL ELECTRIC NEWS	☐	☐	☐
2) MONTANA GRASSROOTS	☐	☐	☐
3) MONTANA FARMER-STOCKMAN	☐	☐	☐
4) MONTANA/WYOMING AGRI-NEWS	☐	☐	☐
5) MONTANA WHEAT SCOOP	☐	☐	☐
6) DAILY NEWSPAPERS	☐	☐	☐
7) WEEKLY NEWSPAPERS	☐	☐	☐
8) RADIO	☐	☐	☐
9) TV	☐	☐	☐
10) ASSOCIATION NEWSLETTERS	☐	☐	☐
11) ASSOCIATION MEETINGS	☐	☐	☐

Q-9 How many acres are in the farm or ranch you operate (include land rented FROM others, exclude land rented TO others)?

1) LESS THAN 1,000 ACRES ☐
2) 1,000 TO 2,500 ACRES ☐
3) MORE THAN 2,500 ACRES ☐

Q-10 How many of these acres are in cropland (exclude pasture)?

1) LESS THAN 500 ACRES ☐
2) 500 to 1,250 ACRES ☐
3) MORE THAN 1,250 ACRES ☐

Is there anything else you would like to tell us that would assist us in delivering energy conservation and renewable energy information? If so, please use this space for that purpose.

Your contribution to this effort is greatly appreciated. If you would like a summary of results, please print your name and address on the back of the return envelope (NOT on this questionnaire), and we will mail you a copy.

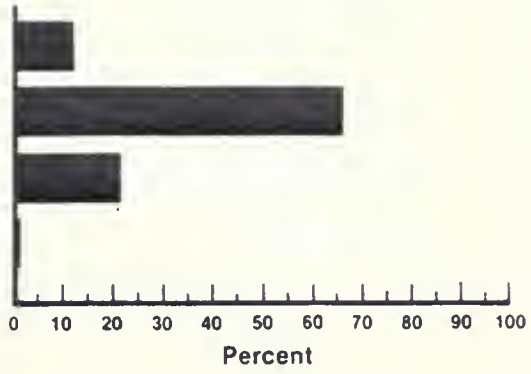
SURVEY HISTOGRAMS

ENERGY OUTREACH SURVEY
FARMERS AND RANCHERS

Q-1 How would you rate your knowledge of the following energy technology -- wind generation (electricity)?

Responses

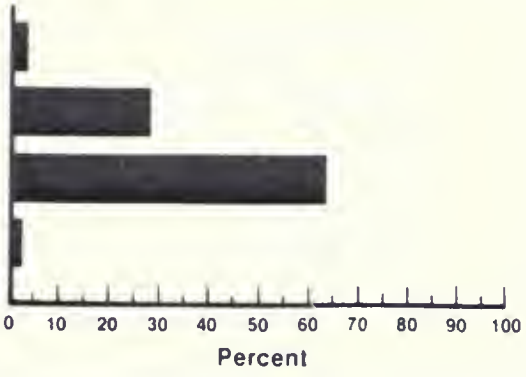
Choice of Answers	Number	Percent
VERY FAMILIAR	129	12.7
SOMEWHAT FAMILIAR	667	65.6
NOT FAMILIAR	217	21.3
NO RESPONSE	4	.4
	1017	100.0



Q-2 How would you rate your knowledge of the following energy technology -- small scale hydropower (electricity)?

Responses

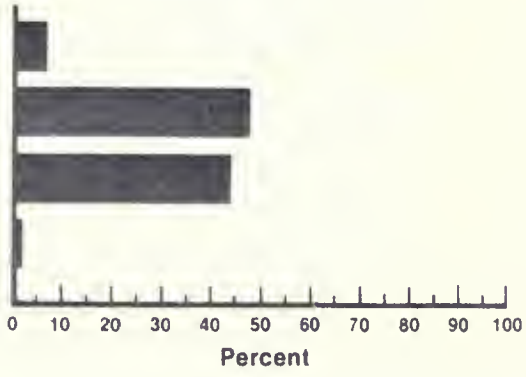
Choice of Answers	Number	Percent
VERY FAMILIAR	43	4.2
SOMEWHAT FAMILIAR	294	28.9
NOT FAMILIAR	651	64.0
NO RESPONSE	29	2.9
	1017	100.0



Q-3 How would you rate your knowledge of the following energy technology -- ethanol from grain (liquid/gaseous fuels)?

Responses

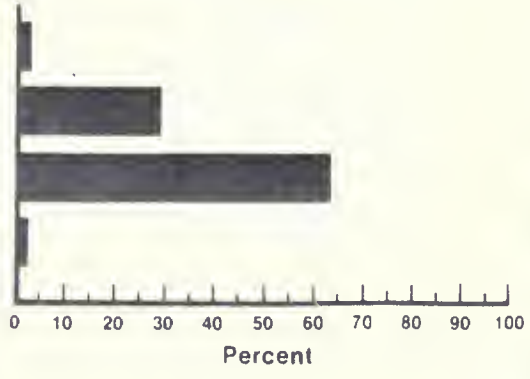
Choice of Answers	Number	Percent
VERY FAMILIAR	68	6.7
SOMEWHAT FAMILIAR	488	48.0
NOT FAMILIAR	448	44.1
NO RESPONSE	13	1.3
	1017	100.0



Q-4 How would you rate your knowledge of the following energy technology -- crop residue (liquid/gaseous fuels)?

Responses

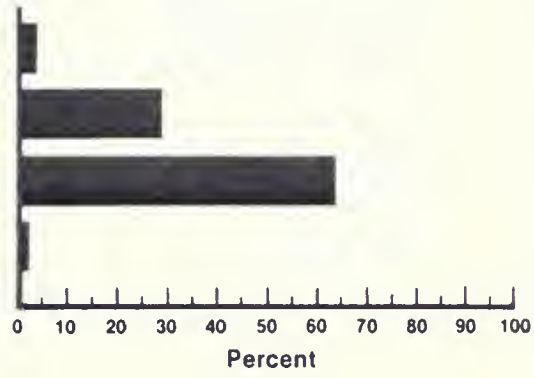
Choice of Answers	Number	Percent
VERY FAMILIAR	40	3.9
SOMEWHAT FAMILIAR	298	29.3
NOT FAMILIAR	655	64.4
NO RESPONSE	24	2.4
	1017	100.0



Q-5 How would you rate your knowledge of the following energy technology -- high protein by-products from ethanol (liquid/gaseous fuels)?

Responses

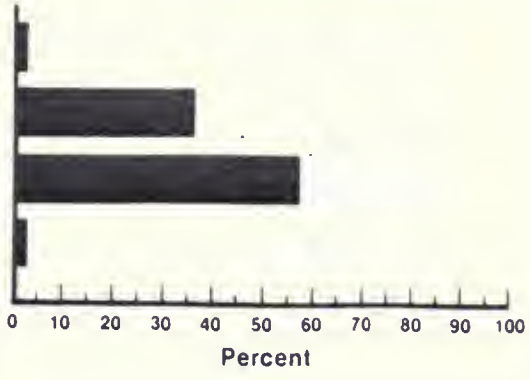
Choice of Answers	Number	Percent
VERY FAMILIAR	42	4.1
SOMEWHAT FAMILIAR	296	29.1
NOT FAMILIAR	659	64.8
NO RESPONSE	20	2.0
	1017	100.0



Q-6 How would you rate your knowledge of the following energy technology -- methane from manure (liquid/gaseous fuels)?

Responses

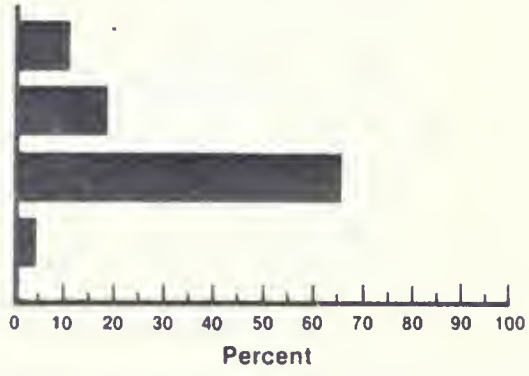
Choice of Answers	Number	Percent
VERY FAMILIAR	26	2.6
SOMEWHAT FAMILIAR	369	36.3
NOT FAMILIAR	595	58.5
NO RESPONSE	27	2.7
	1017	100.0



Q-7 Have you used or do you plan to use the following alternative energy production technology -- wind generation (electricity)?

Responses

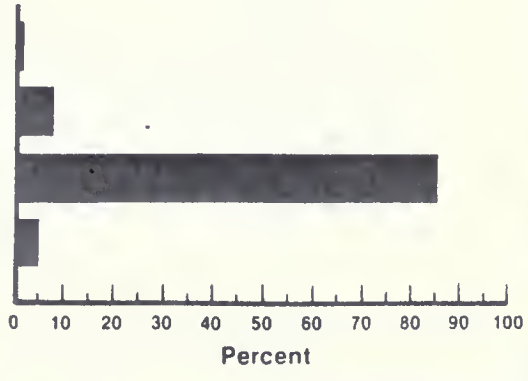
Choice of Answers	Number	Percent
USED/NOW USING	108	10.6
PLAN TO USE	196	19.3
DO NOT PLAN TO USE	665	65.4
NO RESPONSE	48	4.7
	1017	100.0



Q-8 Have you used or do you plan to use the following alternative energy production technology -- small scale hydropower (electricity)?

Responses

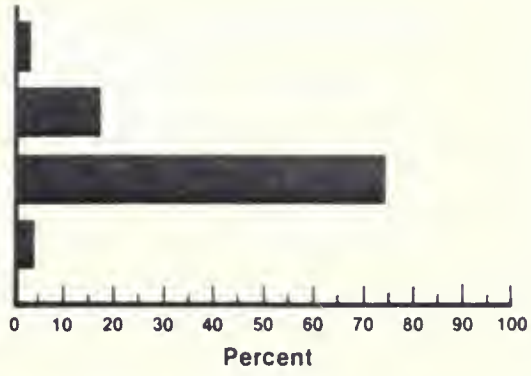
Choice of Answers	Number	Percent
USED/NOW USING	6	.6
PLAN TO USE	91	8.9
DO NOT PLAN TO USE	867	85.3
NO RESPONSE	53	5.2
	1017	100.0



Q-9 Have you used or do you plan to use the following alternative energy production technology -- ethanol from grain or crop residue (liquid/gaseous fuels)?

Responses

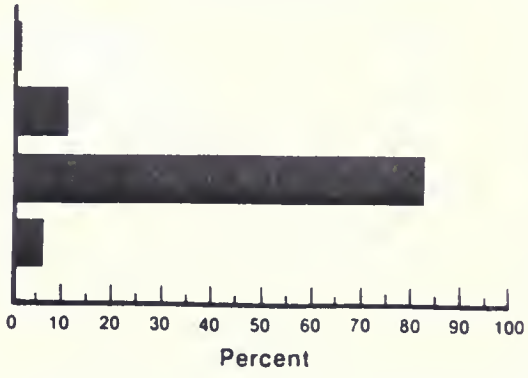
Choice of Answers	Number	Percent
USED/NOW USING	31	3.0
PLAN TO USE	180	17.7
DO NOT PLAN TO USE	758	74.5
NO RESPONSE	48	4.7
	1017	100.0



Q-10 Have you used or do you plan to use the following alternative energy production technology -- high protein by-products from ethanol (liquid/gaseous fuels)?

Responses

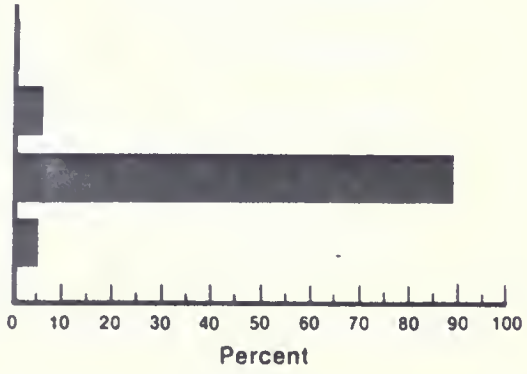
Choice of Answers	Number	Percent
USED/NOW USING	9	.9
PLAN TO USE	105	10.3
DO NOT PLAN TO USE	844	83.0
NO RESPONSE	59	5.8
	1017	100.0



Q-11 Have you used or do you plan to use the following alternative energy production technology -- methane from manure (liquid/ gaseous fuels)?

Responses

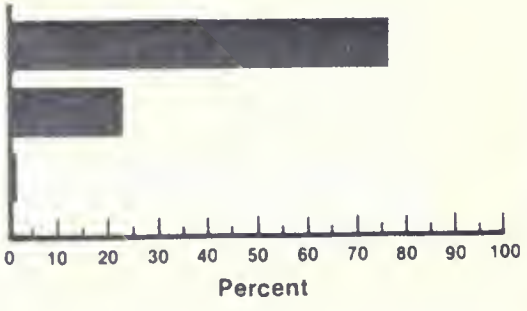
Choice of Answers	Number	Percent
USED/NOW USING	1	.1
PLAN TO USE	59	5.8
DO NOT PLAN TO USE	905	89.0
NO RESPONSE	52	5.1
	1017	100.0



Q-12 Are you aware that any electricity produced on your farm or ranch may be sold to your local utility or cooperative?

Responses

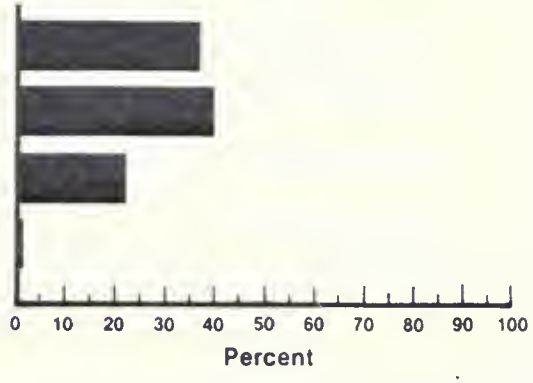
Choice of Answers	Number	Percent
YES	774	76.1
NO	237	23.3
NO RESPONSE	6	.6
	1017	100.0



Q-13 How do you rate your knowledge of the following conservation or renewable energy technology -- wind powered mechanical stockwater pumps?

Responses

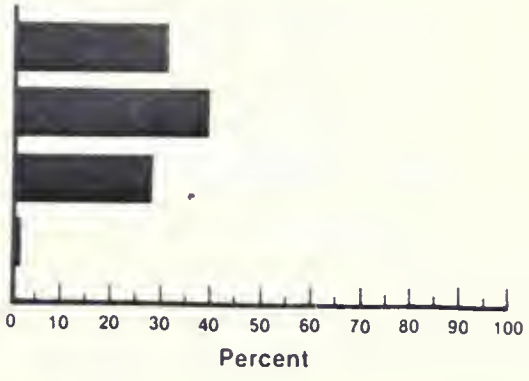
Choice of Answers	Number	Percent
VERY FAMILIAR	374	36.8
SOMEWHAT FAMILIAR	408	40.1
NOT FAMILIAR	225	22.1
NO RESPONSE	10	1.0
	1017	100.0



Q-14 How do you rate your knowledge of the following conservation or renewable energy technology -- efficient farm equipment sizing?

Responses

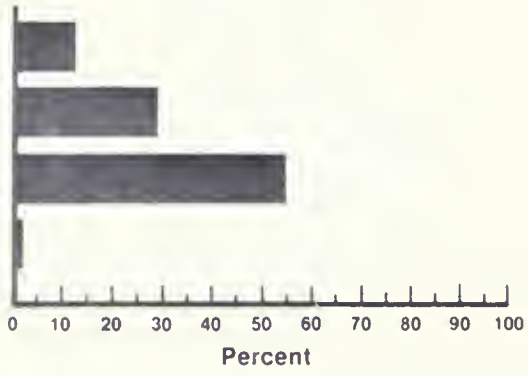
Choice of Answers	Number	Percent
VERY FAMILIAR	316	31.1
SOMEWHAT FAMILIAR	402	39.5
NOT FAMILIAR	285	28.0
NO RESPONSE	14	1.4
	1017	100.0



Q-15 How do you rate your knowledge of the following conservation or renewable energy technology -- energy efficient irrigation systems (i.e., pump sizing, timed use, maintenance)?

Responses

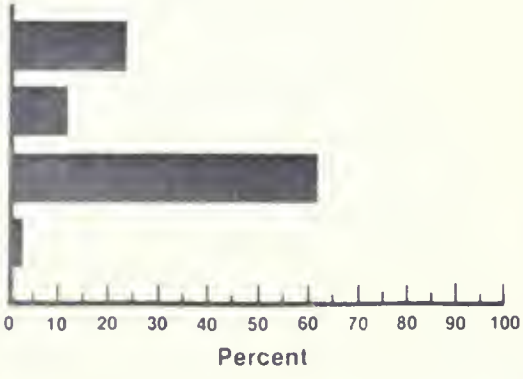
Choice of Answers	Number	Percent
VERY FAMILIAR	137	13.5
SOMEWHAT FAMILIAR	296	29.1
NOT FAMILIAR	563	55.4
NO RESPONSE	21	2.1
	1017	100.0



Q-16 Have you used or do you plan to use the following conservation or renewable energy technology -- wind powered mechanical stockwater pumps?

Responses

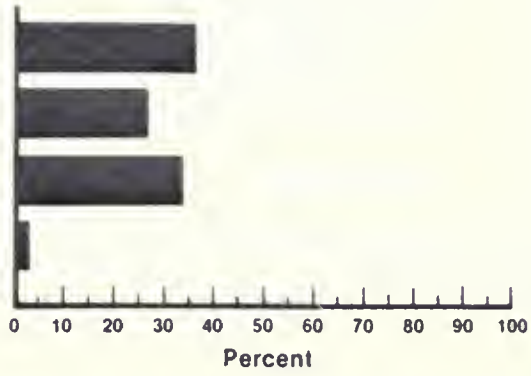
Choice of Answers	Number	Percent
USED/NOW USING	240	23.6
PLAN TO USE	118	11.6
DO NOT PLAN TO USE	625	61.5
NO RESPONSE	34	3.3
	1017	100.0



Q-17 Have you used or do you plan to use the following conservation or renewable energy technology -- efficient farm equipment sizing?

Responses

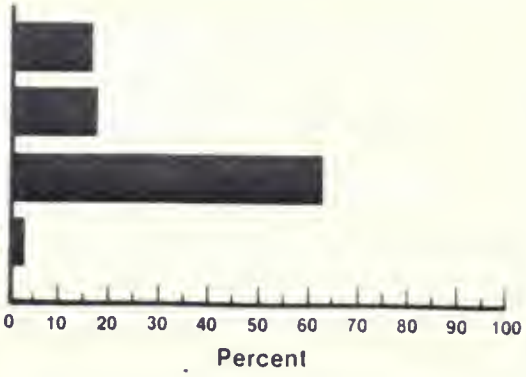
Choice of Answers	Number	Percent
USED/NOW USING	365	35.9
PLAN TO USE	269	26.5
DO NOT PLAN TO USE	351	34.5
NO RESPONSE	32	3.1
	1017	100.0



Q-18 Have you used or do you plan to use the following conservation or renewable energy technology -- energy efficient irrigation systems (i.e., pump sizing, timed use, maintenance)?

Responses

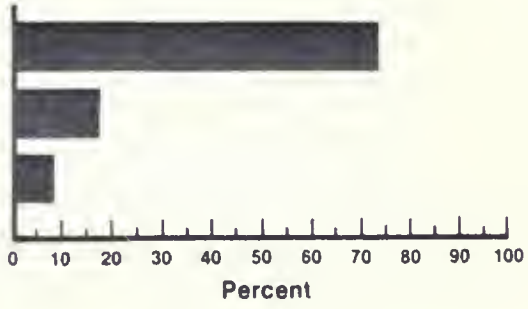
Choice of Answers	Number	Percent
USED/NOW USING	161	15.8
PLAN TO USE	174	17.1
DO NOT PLAN TO USE	648	63.7
NO RESPONSE	34	3.3
	1017	100.0



Q-19 How would you rate the following conservation or renewable energy technology to reduce rising gasoline, diesel, natural gas, or electrical costs -- wind powered mechanical stockwater pumps?

Responses

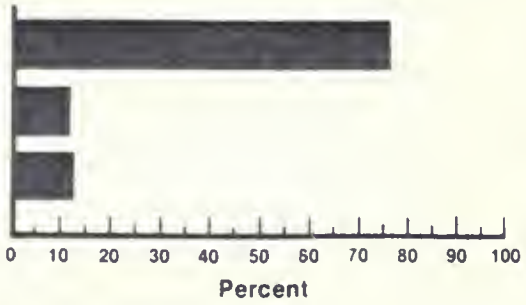
Choice of Answers	Number	Percent
COST EFFECTIVE	751	73.8
NOT COST EFFECTIVE	178	17.5
NO RESPONSE	88	8.7
	1017	100.0



Q-20 How would you rate the following conservation or renewable energy technology to reduce rising gasoline, diesel, natural gas, or electrical costs -- efficient farm machine sizing?

Responses

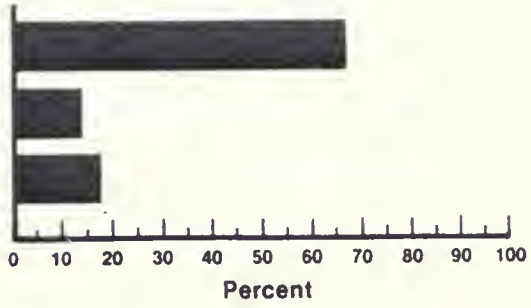
Choice of Answers	Number	Percent
COST EFFECTIVE	769	75.6
NOT COST EFFECTIVE	117	11.5
NO RESPONSE	131	12.9
	1017	100.0



Q-21 How would you rate the following conservation or renewable energy technology to reduce rising gasoline, diesel, natural gas, or electrical costs -- energy efficient irrigation systems (i.e., pump sizing, timed use, maintenance)?

Responses

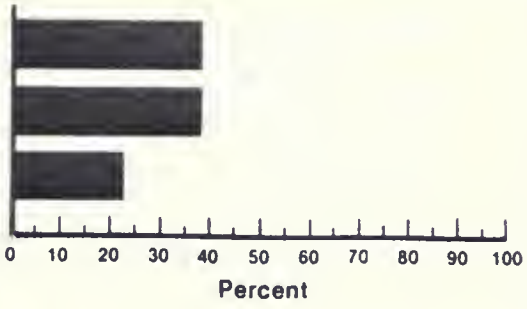
Choice of Answers	Number	Percent
COST EFFECTIVE	684	67.3
NOT COST EFFECTIVE	142	14.0
NO RESPONSE	191	18.8
	1017	100.0



Q-22 How would you rate the following conservation or renewable energy technology to reduce rising gasoline, diesel, natural gas, or electrical costs -- small scale hydropower?

Responses

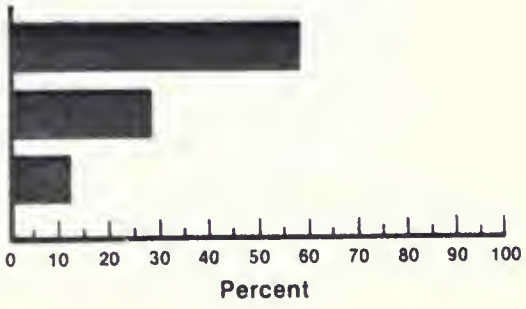
Choice of Answers	Number	Percent
COST EFFECTIVE	387	38.1
NOT COST EFFECTIVE	392	38.5
NO RESPONSE	238	23.4
	1017	100.0



Q-23 How would you rate the following conservation or renewable energy technology to reduce rising gasoline, diesel, natural gas, or electrical costs -- wind generated electricity?

Responses

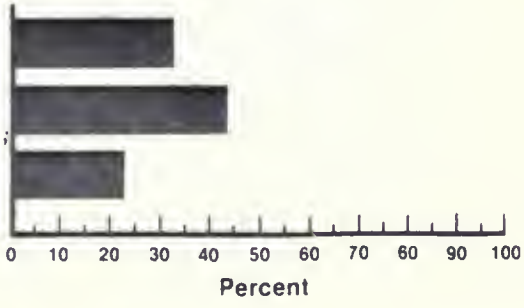
Choice of Answers	Number	Percent
COST EFFECTIVE	597	58.7
NOT COST EFFECTIVE	293	28.8
NO RESPONSE	127	12.5
	1017	100.0



Q-24 How would you rate the following conservation or renewable energy technology to reduce rising gasoline, diesel, natural gas, or electrical costs -- methane from manure?

Responses

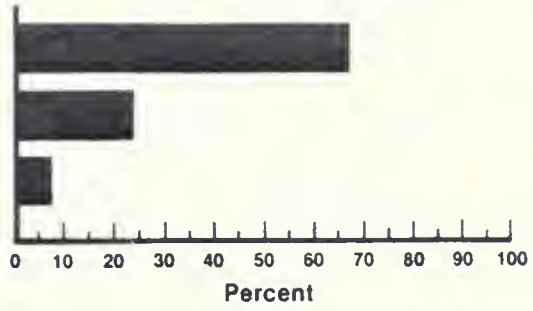
Choice of Answers	Number	Percent
COST EFFECTIVE	337	33.1
NOT COST EFFECTIVE	447	44.0
NO RESPONSE	233	22.9
	1017	100.0



Q-25 Have you found information on conservation or renewable energy from Montana Rural Electric News?

Responses

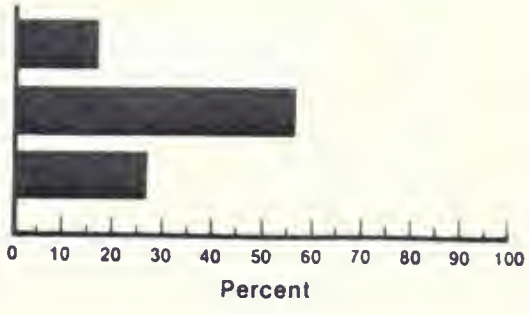
Choice of Answers	Number	Percent
YES	684	67.3
NO	248	24.4
NO RESPONSE	85	8.4
	1017	100.0



Q-26 Have you found information on conservation or renewable energy from Montana Grassroots?

Responses

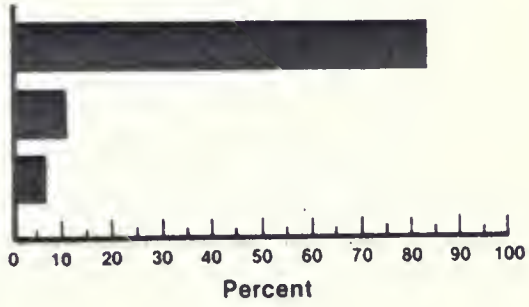
Choice of Answers	Number	Percent
YES	169	16.6
NO	569	55.9
NO RESPONSE	279	27.4
	1017	100.0



Q-27 Have you found information on conservation or renewable energy from Montana Farmer-Stockman?

Responses

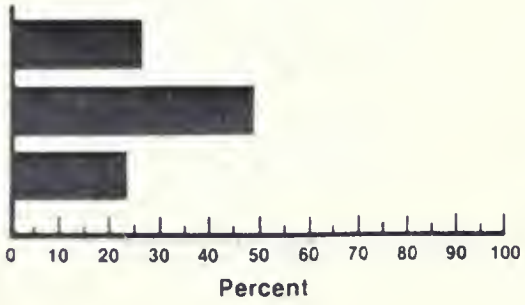
Choice of Answers	Number	Percent
YES	853	83.9
NO	106	10.4
NO RESPONSE	58	5.7
	1017	100.0



Q-28 Have you found information on conservation or renewable energy from Montana/Wyoming Agri-News?

Responses

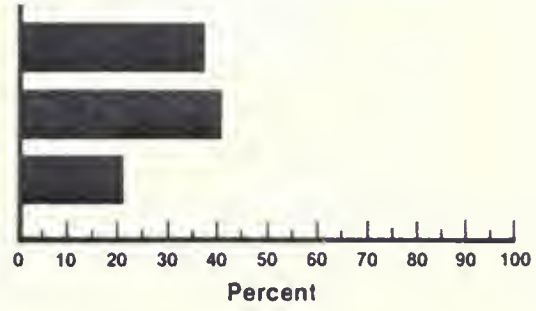
Choice of Answers	Number	Percent
YES	267	26.3
NO	502	49.4
NO RESPONSE	248	24.4
	1017	100.0



Q-29 Have you found information on conservation or renewable energy from Montana Wheat Scoop?

Responses

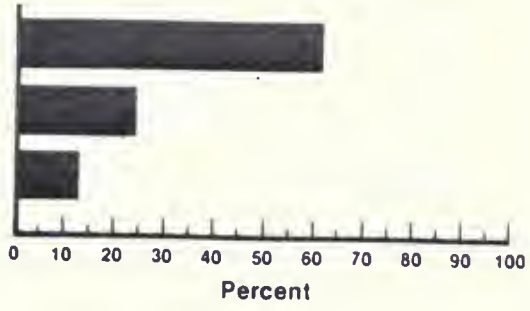
Choice of Answers	Number	Percent
YES	389	38.2
NO	411	40.4
NO RESPONSE	217	21.3
	1017	100.0



Q-30 Have you found information on conservation or renewable energy from daily newspapers?

Responses

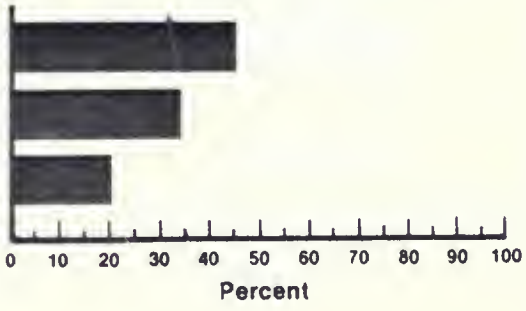
Choice of Answers	Number	Percent
YES	627	61.7
NO	253	24.9
NO RESPONSE	137	13.5
	1017	100.0



Q-31 Have you found information on conservation or renewable energy from weekly newspapers?

Responses

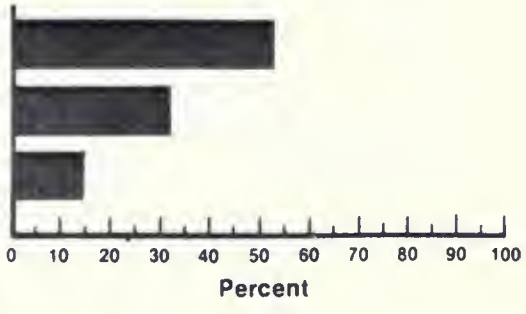
Choice of Answers	Number	Percent
YES	458	45.0
NO	353	34.7
NO RESPONSE	206	20.3
	1017	100.0



Q-32 Have you found information on conservation or renewable energy from the radio?

Responses

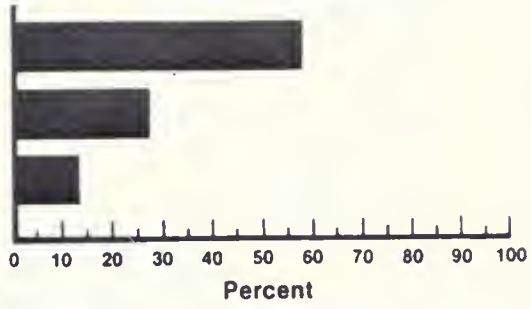
Choice of Answers	Number	Percent
YES	541	53.2
NO	324	31.9
NO RESPONSE	152	14.9
	1017	100.0



Q-33 Have you found information on conservation or renewable energy from the TV?

Responses

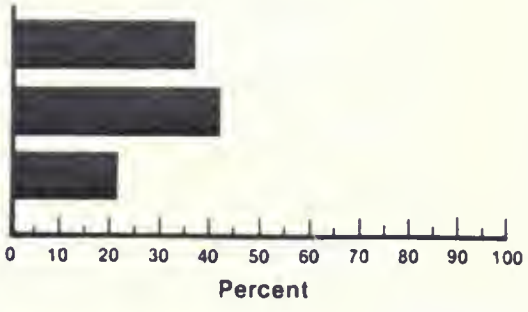
Choice of Answers	Number	Percent
YES	588	57.8
NO	288	28.3
NO RESPONSE	141	13.9
	1017	100.0



Q-34 Have you found information on conservation or renewable energy from association newsletters?

Responses

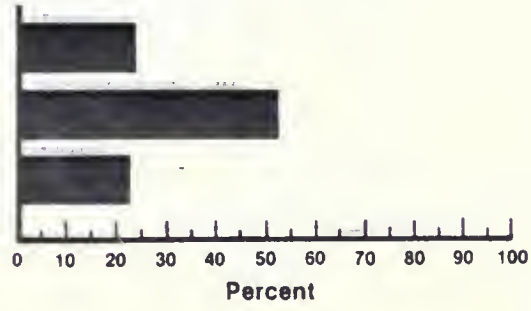
Choice of Answers	Number	Percent
YES	378	37.2
NO	429	42.2
NO RESPONSE	210	20.7
	1017	100.0



Q-35 Have you found information on conservation or renewable energy from association meetings?

Responses

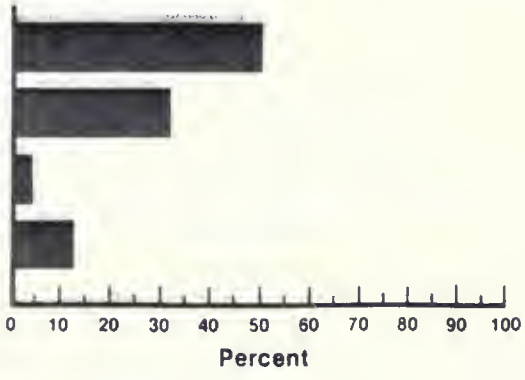
Choice of Answers	Number	Percent
YES	250	24.6
NO	531	52.2
NO RESPONSE	235	23.2
	1017	100.0



Q-36 How helpful do you think Montana Rural Electric News is in delivering information on conservation or renewable energy?

Responses

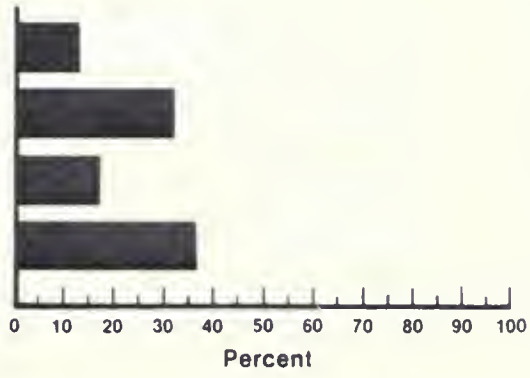
Choice of Answers	Number	Percent
VERY HELPFUL	509	50.0
SOMEWHAT HELPFUL	320	31.5
NOT HELPFUL	53	5.2
NO RESPONSE	135	13.3
	1017	100.0



Q-37 How helpful do you think Montana Grassroots is in delivering information on conservation or renewable energy?

Responses

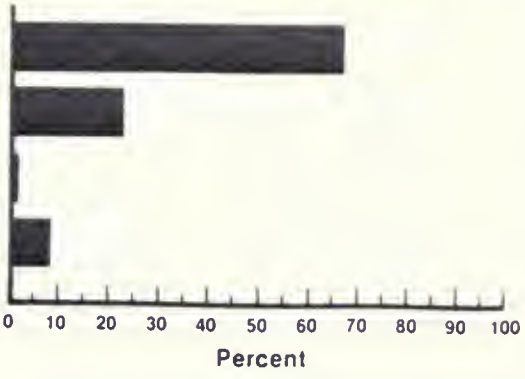
Choice of Answers	Number	Percent
VERY HELPFUL	144	14.2
SOMEWHAT HELPFUL	329	32.4
NOT HELPFUL	171	16.8
NO RESPONSE	373	36.7
	1017	100.0



Q-38 How helpful do you think Montana Farmer-Stockman is in delivering information on conservation or renewable energy?

Responses

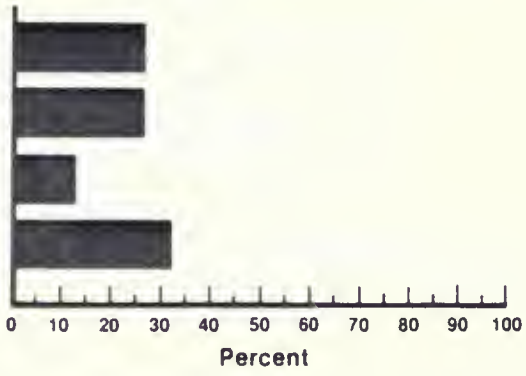
Choice of Answers	Number	Percent
VERY HELPFUL	679	66.8
SOMEWHAT HELPFUL	232	22.8
NOT HELPFUL	19	1.9
NO RESPONSE	87	8.6
	1017	100.0



Q-39 How helpful do you think Montana/Wyoming Agri-News is in delivering information on conservation or renewable energy?

Responses

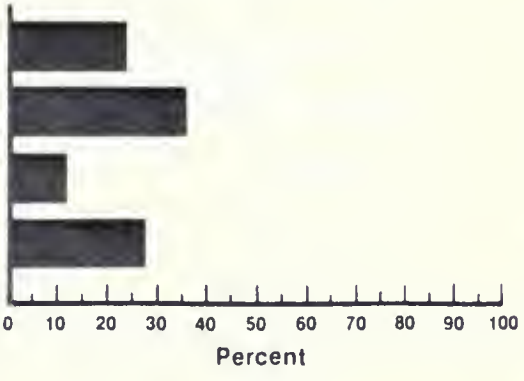
Choice of Answers	Number	Percent
VERY HELPFUL	281	27.6
SOMEWHAT HELPFUL	278	27.3
NOT HELPFUL	135	13.3
NO RESPONSE	323	31.8
	1017	100.0



Q-40 How helpful do you think Montana Wheat Scoop is in delivering information on conservation or renewable energy?

Responses

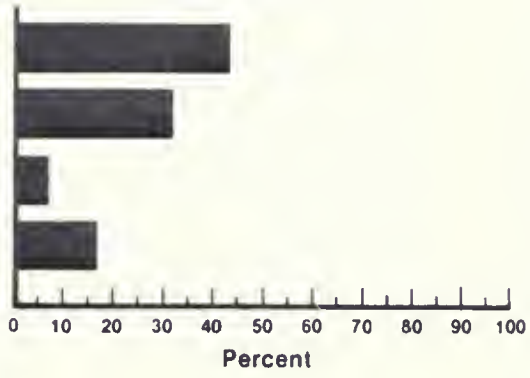
Choice of Answers	Number	Percent
VERY HELPFUL	247	24.3
SOMEWHAT HELPFUL	362	35.6
NOT HELPFUL	125	12.3
NO RESPONSE	283	27.8
	1017	100.0



Q-41 How helpful do you think daily newspapers are in delivering information on conservation or renewable energy?

Responses

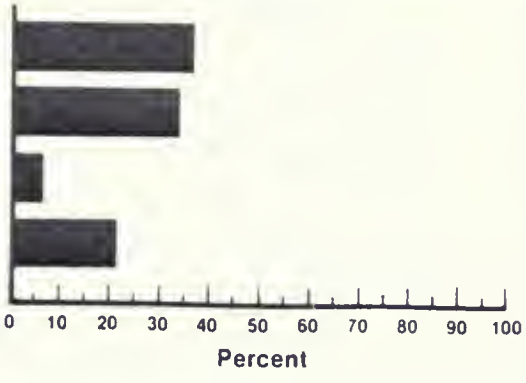
Choice of Answers	Number	Percent
VERY HELPFUL	451	44.3
SOMEWHAT HELPFUL	322	31.7
NOT HELPFUL	80	7.9
NO RESPONSE	164	16.1
	1017	100.0



Q-42 How helpful do you think weekly newspapers are in delivering information on conservation or renewable energy?

Responses

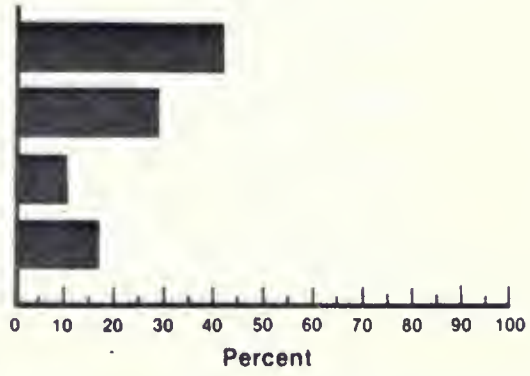
Choice of Answers	Number	Percent
VERY HELPFUL	363	35.7
SOMEWHAT HELPFUL	353	34.7
NOT HELPFUL	84	8.3
NO RESPONSE	217	21.3
	1017	100.0



Q-43 How helpful do you think the radio is in delivering information on conservation or renewable energy?

Responses

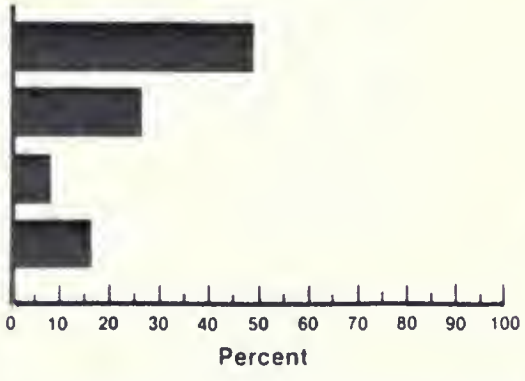
Choice of Answers	Number	Percent
VERY HELPFUL	433	42.6
SOMEWHAT HELPFUL	300	29.5
NOT HELPFUL	107	10.5
NO RESPONSE	177	17.4
	1017	100.0



Q-44 How helpful do you think the TV is in delivering information on conservation or renewable energy?

Responses

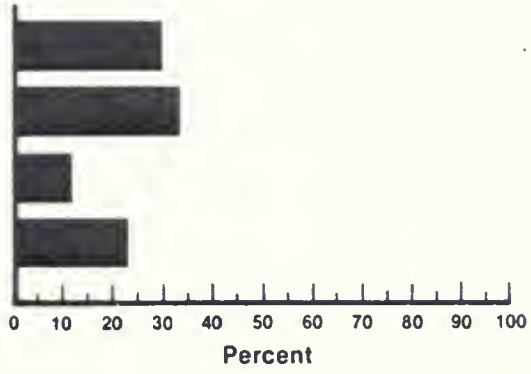
Choice of Answers	Number	Percent
VERY HELPFUL	499	49.1
SOMEWHAT HELPFUL	266	26.2
NOT HELPFUL	86	8.5
NO RESPONSE	166	16.3
	1017	100.0



Q-45 How helpful do you think association newsletters are in delivering information on conservation or renewable energy?

Responses

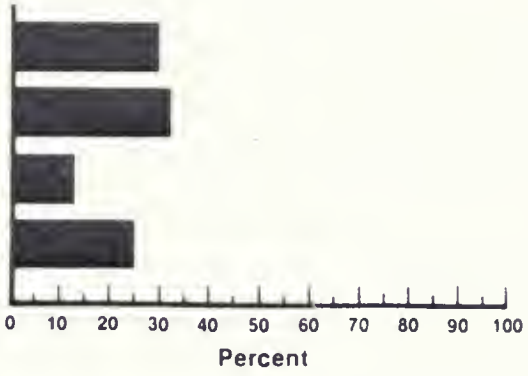
Choice of Answers	Number	Percent
VERY HELPFUL	308	30.3
SOMEWHAT HELPFUL	348	34.2
NOT HELPFUL	122	12.0
NO RESPONSE	239	23.5
	1017	100.0



Q-46 How helpful do you think association meetings are in delivering information on conservation or renewable energy?

Responses

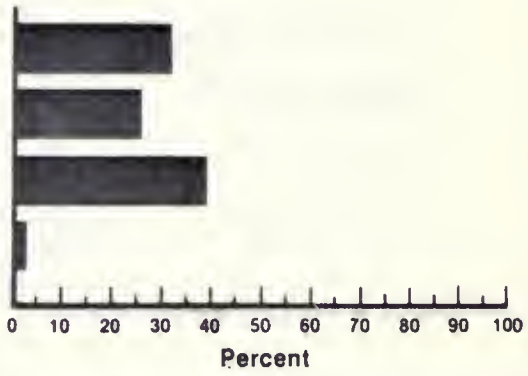
Choice of Answers	Number	Percent
VERY HELPFUL	305	30.0
SOMEWHAT HELPFUL	322	31.7
NOT HELPFUL	135	13.3
NO RESPONSE	255	25.1
	1017	100.0



Q-47 How many acres are in the farm or ranch you operate (include land rented FROM others, exclude land rented TO others)?

Responses

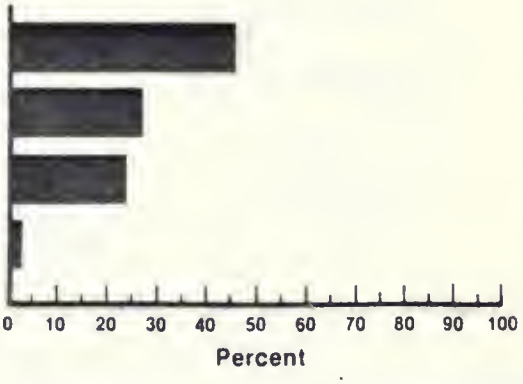
Choice of Answers	Number	Percent
LESS THAN 1,000 ACRES	324	31.9
1,000 TO 2,500 ACRES	263	25.9
MORE THAN 2,500 ACRES	404	39.7
NO RESPONSE	26	2.6
	1017	100.0



Q-48 How many of these acres are in cropland (exclude pasture)?

Responses

Choice of Answers	Number	Percent
LESS THAN 500 ACRES	464	45.6
500 TO 1,250 ACRES	279	27.4
MORE THAN 1,250 ACRES	248	24.4
NO RESPONSE	26	2.6
	1017	100.0



APPENDIX B cont'd.

LARGE BUSINESSES

1. SUMMARY OF RESULTS

2. QUESTIONNAIRES

3. SURVEY HISTOGRAMS

SUMMARY OF RESULTS

ENERGY OUTREACH SURVEY

LARGE BUSINESSES

The larger businesses in Montana are very aware of energy conservation. Frequently, large percentages of the respondents indicated a strong degree of familiarity with and use of energy conservation techniques in their places of business.

Nearly 40% of the businesses reported that an energy audit had been conducted and over 75% have implemented energy management programs designed to reduce energy waste at the business. These major businesses also appeared to have a reasonable notion of the energy savings they have enjoyed due to the conservation measures they have taken.

Only 2% of the businessmen interviewed said that they were unfamiliar with energy conservation through insulation, caulking, and weather-stripping. Ninety-four percent indicated a familiarity with heating system maintenance and modifications to obtain energy conservation and 79% indicated a familiarity with energy savings through lighting modifications. Over 50% indicated a lack of familiarity with solar heating, thus this is identified as an area where large businesses most need information.

Between 70 and 80% of the businessmen are presently using decreased winter thermostat settings and reduced air infiltration methods at their facilities. Between 50 and 65% of the businesses have closed off unused spaces, insulated heaters, increased summer thermostat settings, modified lighting and installed additional insulation and double-pane windows. Approximately 35% have installed heat recovery

devices and clock controlled thermostats. It is evident that as the degree of technology increases in the various energy conservation measures they become less widely used even in the major businesses. Only 15% are using computer controlled systems and fewer than 6% have installed any form of solar heating.

Additional actions which over 70% of the businesses reported they have taken towards energy conservation include better vehicle maintenance scheduling, careful sizing of building heaters and boilers, and regular scheduled maintenance. Large percentages (over 50%) also have purchased more energy-efficient vehicles and given special attention to the proper size and maintenance procedures for large machinery. In addition, 52% reported that they have an employee suggestion system directly related to energy conservation.

The cogeneration technique of generating electricity from process waste is unfamiliar to over 70% of the businessmen and is only being utilized by 2% at the present time. Waste heat recovery was rated somewhat higher with as many as 25% indicating utilization of this energy conservation technique.

It appears that professional meetings or workshops related to energy conservation measures would be well attended by representatives from major businesses if they were conveniently located. Sixty percent of the respondents had not attended any such meetings in the past year, but 90% indicated they would be willing to do so. Twenty percent of the respondents indicated the utility companies should bear the cost of such meetings and 40% believed the participants should be finan-

cially responsible for the workshops. The remaining 40% thought the cost should be split in some manner.

The relatively informed status of business representatives concerning energy conservation is largely due to the information they obtain from reading their professional publications, newspapers, and magazines. It would appear that in addition to energy workshops further distribution of energy conservation information through the media and especially professional publications would be the most efficient way of reaching businessmen with energy information. Civic organizations received the lowest rating for usefulness in delivery of energy information.

Three-fourths of the respondents identified themselves as managers or employees rather than as the owner of the business. This may indicate that in many cases these businesses are national in scope and consequently their energy policies are determined and passed down from sources external to Montana.

QUESTIONNAIRES

ENERGY OUTREACH SURVEY

LARGE BUSINESS

My name is _____. I am calling for the State of Montana Department of Natural Resources in regard to a survey concerning energy conservation measures taken by businesses in Montana.

Could I speak to the owner or the manager of your physical plant operations?

(Repeat "My name is _____. I am calling for....."

Could you answer a few questions about your understanding of energy use and energy conservation measures that your business has taken?

Thank you for agreeing to help with the survey. It will take less than 10 minutes. All of your responses will be strictly confidential and only used in connection with those of other businesses surveyed to reflect a statewide profile of energy considerations.

For each question there will be a list of responses which I will read for you to choose from. Do you have any questions before we begin?

1. Has an energy audit been conducted at your business? (0=no, 1=yes)

2. Have you implemented an energy management program which would reduce the waste of energy at your business? (0=no, 1=yes)

3. If you have implemented changes as a result of the above measures, what percentage of your energy consumption do you think you have saved: none (0), less than 25% (1), or more than 25% (2)?

Would you say you are very familiar (1), somewhat familiar (2), or not familiar (3) with the following energy conservation measures:

4. Insulation, caulking, weatherstripping

5. Heating system maintenance and modification

6. Passive solar heating

7. Active solar heating

8. Lighting modifications

I will now read a list of energy conservation measures. Please indicate whether you are using (1) or plan to use (2) any of these at your place of business. [If not using or planning to use, code 0.]

9. Additional insulation

10. Weatherstripping, caulking

11. Lighting modifications

12. Double or triple pane windows

13. Insulated window covers

14. Passive solar heating

15. Active solar heating

16. Increased summer thermostat setting

17. Decreased winter thermostat setting

18. Heat recovery devices

19. Computer control systems

20. Insulated boilers, furnaces, ducts, pipes, or water heaters

21. Closed off unused or slightly used portions of building

22. Clock control thermostat

23. Storm windows

24. What percentage of your energy consumption do you think you have saved as a result of taking any of these measures: none (0), less than 25% (1), or more than 25% (2)?

Have you taken (1) or do you plan to take (2) any of the following actions to conserve energy? [If not taken or do not plan to use, code 0.]

25. Boiler/heater maintenance scheduling

26. Proper sizing of boiler/heaters

27. Large machinery maintenance scheduling

28. Proper sizing of large machinery

29. Vehicle fleet maintenance scheduling

30. Use of more energy-efficient vehicles

31. Instituted an employee suggestion program

32. Staggered employee work schedules

33. Held employee workshops on energy conservation

How would you rate your knowledge of the following conservation techniques: very familiar (1), somewhat familiar (2), or not familiar (3).

34. Cogeneration (generating electricity from process wastes)

35. Waste heat recovery

Have you (1) or do you plan to utilize (2) either of the following energy conservation techniques? [If not taken or do not plan to use, code 0.]

36. Cogeneration (generating electricity from process wastes)

37. Waste heat recovery

38. How many workshops or professional meetings dealing with energy conservation or renewable energy have you attended in the past year: none (0), one (1), or more than one (2)?

39. Would you be willing to attend workshops related to energy conservation or renewable energy if they were available in your area (no=0, yes=1)?

40. Who do you feel should pay for these workshops: state government (1), federal government (2), utility companies (3), or participants (4)?

Have you found information on conservation or renewable energy from any of the following sources? (no=0, 1=yes)

41. Professional associations/publications

42. Civic organizations

43. Radio

44. TV

45. Newspapers

46. Magazines

47. Energy workshops

Do you think the following sources could be very useful (1), somewhat useful (2), or not useful (3) to deliver information on energy conservation and renewable energy?

48. Professional associations/publications

49. Civic organizations

50. Radio

51. TV

52. Newspapers

53. Magazines

54. Energy workshops

55. How many employees does your firm employ: less than 50 (1), 50-99 (2), 100-149 (3), 150-199 (4), 200 or more (5)?

56. How many major buildings does your firm utilize: 1-5 (1), 6-10 (2), 11-20 (3), over 20 (4)?

57. Which best describes your current position with your firm: owner (1), partner (2), or manager/employee (3)?

That is the end of the survey. Thank you very much for your cooperation.

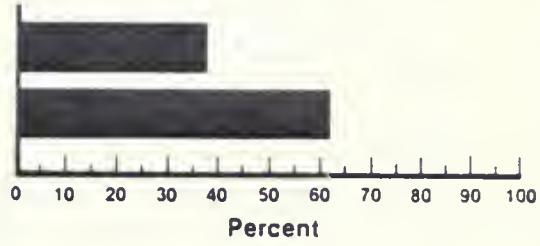
SURVEY HISTOGRAMS

ENERGY OUTREACH SURVEY
LARGE BUSINESS

Q-1 Has an energy audit been conducted at your business?

Responses

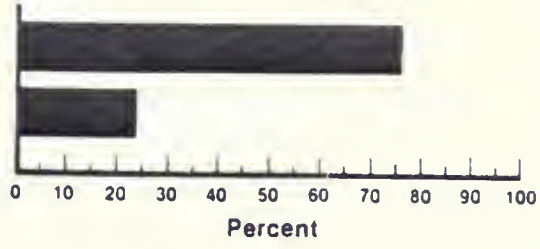
Choice of Answers	Number	Percent
YES	78	38.8
NO	123	61.2
	201	100.0



Q-2 Have you implemented an energy management program which would reduce the waste of energy at your business?

Responses

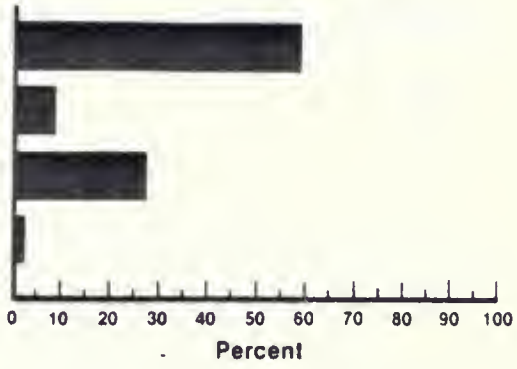
Choice of Answers	Number	Percent
YES	152	75.6
NO	49	24.4
	201	100.0



Q-3 If you have implemented changes as a result of an energy audit or an energy management program, what percentage of your energy consumption do you think you have saved?

Responses

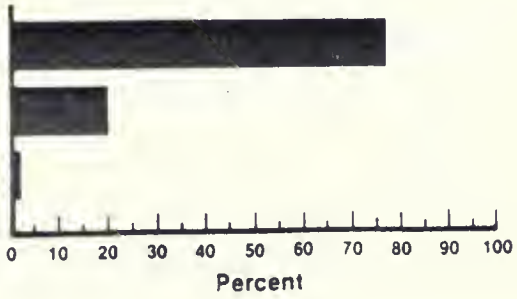
Choice of Answers	Number	Percent
LESS THAN 25%	120	59.7
MORE THAN 25%	19	9.5
NONE	57	28.4
DON'T KNOW	5	2.5
	201	100.0



Q-4 Would you say you are very familiar, somewhat familiar, or not familiar with the following energy conservation measure -- insulation, caulking, weatherstripping?

Responses

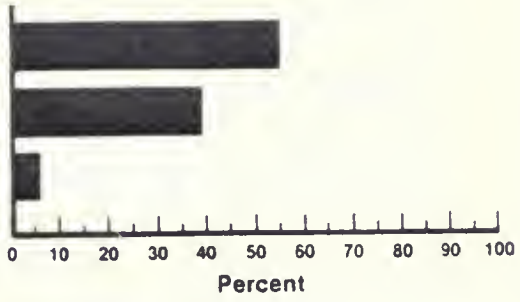
Choice of Answers	Number	Percent
VERY FAMILIAR	156	77.6
SOMEWHAT FAMILIAR	41	20.4
NOT FAMILIAR	4	2.0
	201	100.0



Q-5 Would you say you are very familiar, somewhat familiar, or not familiar with the following energy conservation measure -- heating system maintenance and modification?

Responses

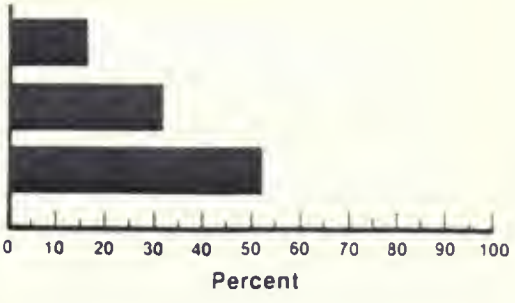
Choice of Answers	Number	Percent
VERY FAMILIAR	111	55.2
SOMEWHAT FAMILIAR	79	39.3
NOT FAMILIAR	11	5.5
	201	100.0



Q-6 Would you say you are very familiar, somewhat familiar, or not familiar with the following energy conservation measure -- passive solar heating?

Responses

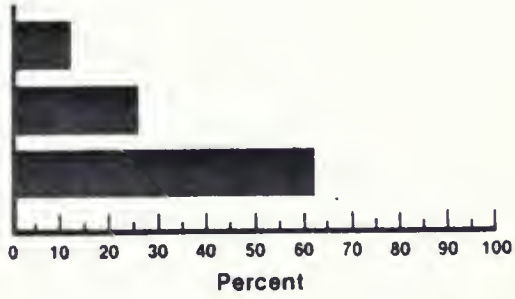
Choice of Answers	Number	Percent
VERY FAMILIAR	33	16.4
SOMEWHAT FAMILIAR	64	31.8
NOT FAMILIAR	104	51.7
	201	100.0



Q-7 Would you say you are very familiar, somewhat familiar, or not familiar with the following energy conservation measure -- active solar heating?

Responses

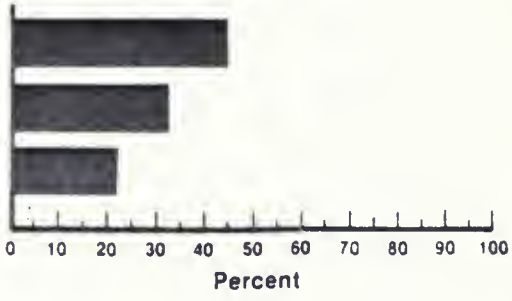
Choice of Answers	Number	Percent
VERY FAMILIAR	24	11.9
SOMEWHAT FAMILIAR	52	25.9
NOT FAMILIAR	125	62.2
	201	100.0



Q-8 Would you say you are very familiar, somewhat familiar, or not familiar with the following energy conservation measure -- lighting modifications?

Responses

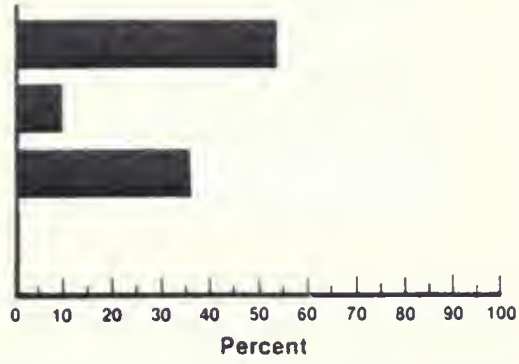
Choice of Answers	Number	Percent
VERY FAMILIAR	91	45.3
SOMEWHAT FAMILIAR	67	33.3
NOT FAMILIAR	43	21.4
	201	100.0



Q-9 Are you using or do you plan to use the following measure at your place of business -- additional insulation?

Responses

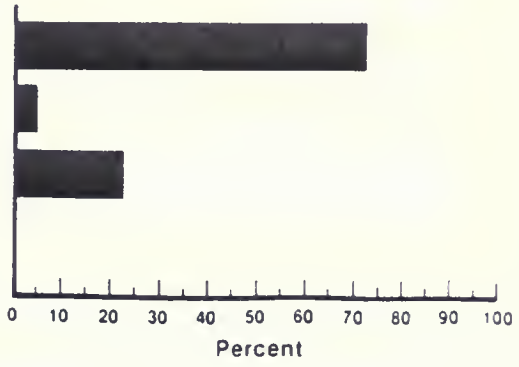
Choice of Answers	Number	Percent
ARE USING	109	54.2
PLAN TO USE	20	10.0
NOT USING/DO NOT PLAN TO USE	72	35.8
DON'T KNOW	0	0.0
	201	100.0



Q-10 Are you using or do you plan to use the following measure at your place of business -- weatherstripping/caulking corrections?

Responses

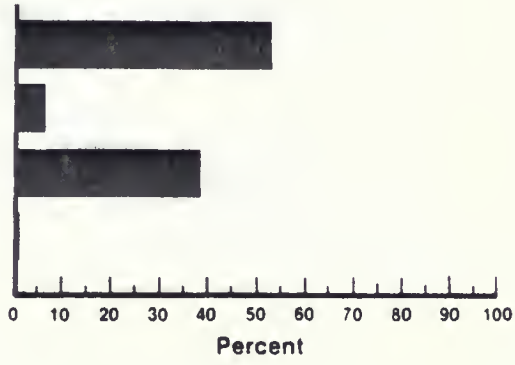
Choice of Answers	Number	Percent
ARE USING	146	72.6
PLAN TO USE	10	5.0
NOT USING/DO NOT PLAN TO USE	45	22.4
DON'T KNOW	0	0.0
	201	100.0



Q-11 Are you using or do you plan to use the following measure at your place of business -- lighting modifications?

Responses

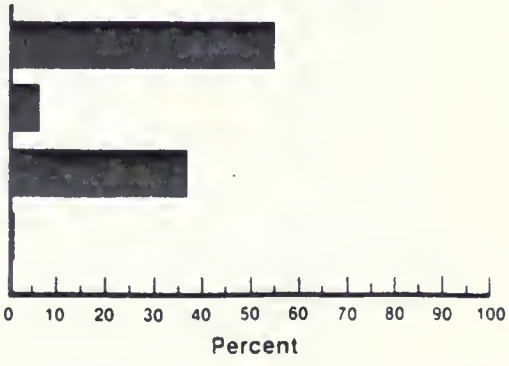
Choice of Answers	Number	Percent
ARE USING	109	54.2
PLAN TO USE	12	6.0
NOT USING/DO NOT PLAN TO USE	79	39.3
DON'T KNOW	1	.5
	201	100.0



Q-12 Are you using or do you plan to use the following measure at your place of business -- double or triple pane windows?

Responses

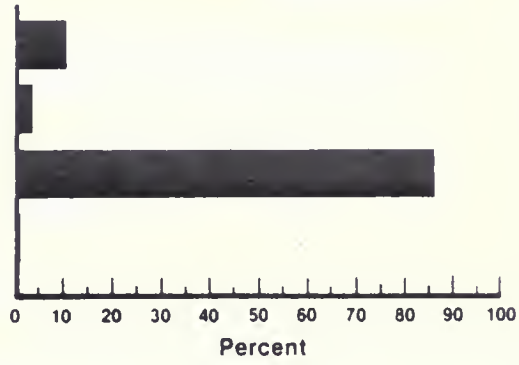
Choice of Answers	Number	Percent
ARE USING	111	55.2
PLAN TO USE	13	6.5
NOT USING/DO NOT PLAN TO USE	76	37.8
DON'T KNOW	1	.5
	201	100.0



Q-13 Are you using or do you plan to use the following measure at your place of business -- insulated window covers?

Responses

Choice of Answers	Number	Percent
ARE USING	21	10.4
PLAN TO USE	7	3.5
NOT USING/DO NOT PLAN TO USE	172	85.6
DON'T KNOW	1	.5
	201	100.0



Q-14 Are you using or do you plan to use the following measure at your place of business -- passive solar heating?

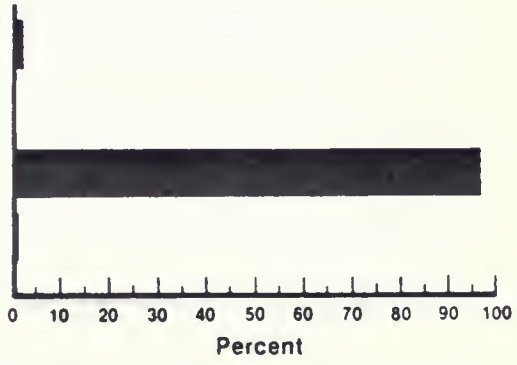
Responses

Choice of Answers	Number	Percent
ARE USING	12	6.0
PLAN TO USE	2	1.0
NOT USING/DO NOT PLAN TO USE	186	92.5
DON'T KNOW	1	.5
	201	100.0

Q-15 Are you using or do you plan to use the following measure at your place of business -- active solar heating?

Responses

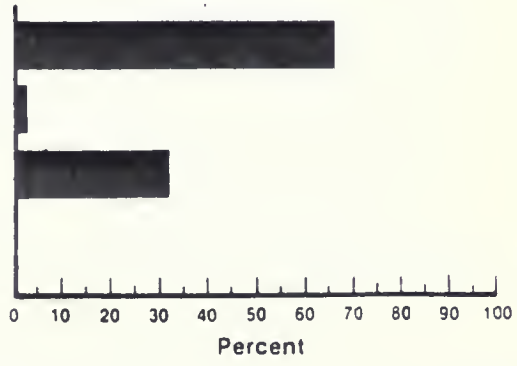
Choice of Answers	Number	Percent
ARE USING	3	1.5
PLAN TO USE	0	0.0
NOT USING/DO NOT PLAN TO USE	197	98.0
DON'T KNOW	1	.5
	201	100.0



Q-16 Are you using or do you plan to use the following measure at your place of business -- increased thermostat setting in summer?

Responses

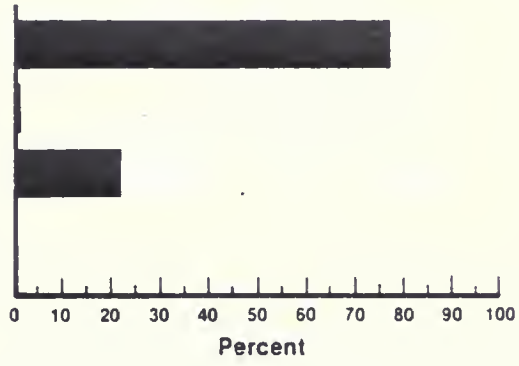
Choice of Answers	Number	Percent
ARE USING	132	65.7
PLAN TO USE	5	2.5
NOT USING/DO NOT PLAN TO USE	64	31.8
DON'T KNOW	0	0.0
	201	100.0



Q-17 Are you using or do you plan to use the following measure at your place of business -- decreased thermostat setting in winter?

Responses

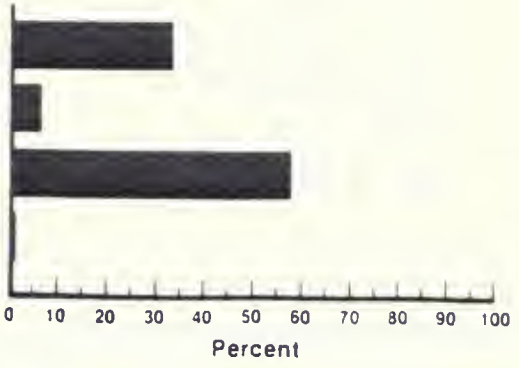
Choice of Answers	Number	Percent
ARE USING	157	78.1
PLAN TO USE	1	.5
NOT USING/DO NOT PLAN TO USE	43	21.4
DON'T KNOW	0	0.0
	201	100.0



Q-18 Are you using or do you plan to use the following measure at your place of business -- heat recovery devices?

Responses

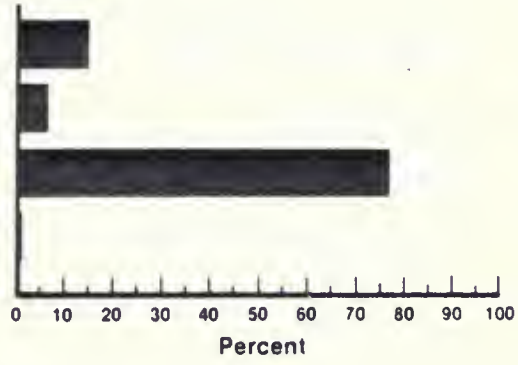
Choice of Answers	Number	Percent
ARE USING	69	34.3
PLAN TO USE	13	6.5
NOT USING/DO NOT PLAN TO USE	118	58.7
DON'T KNOW	1	.5
	201	100.0



Q-19 Are you using or do you plan to use the following measure at your place of business -- computer control systems?

Responses

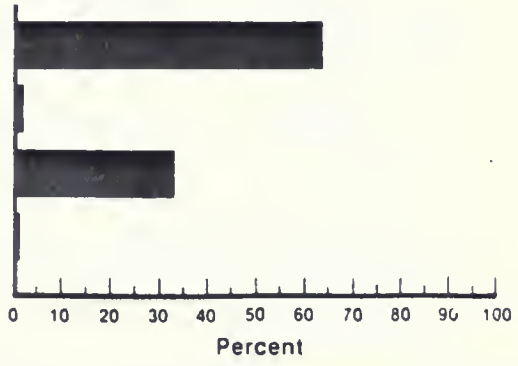
Choice of Answers	Number	Percent
ARE USING	30	14.9
PLAN TO USE	15	7.5
NOT USING/DO NOT PLAN TO USE	155	77.1
DON'T KNOW	1	.5
	201	100.0



Q-20 Are you using or do you plan to use the following measure at your place of business -- insulated boilers, furnaces, ducts, pipes, water heater?

Responses

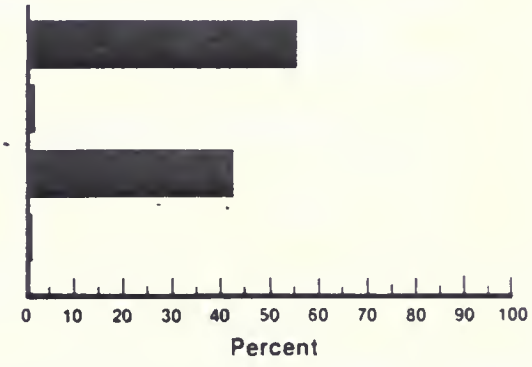
Choice of Answers	Number	Percent
ARE USING	130	64.7
PLAN TO USE	3	1.5
NOT USING/DO NOT PLAN TO USE	67	33.3
DON'T KNOW	1	.5
	201	100.0



Q-21 Are you using or do you plan to use the following measure at your place of business -- closed off unused or slightly used portions of building?

Responses

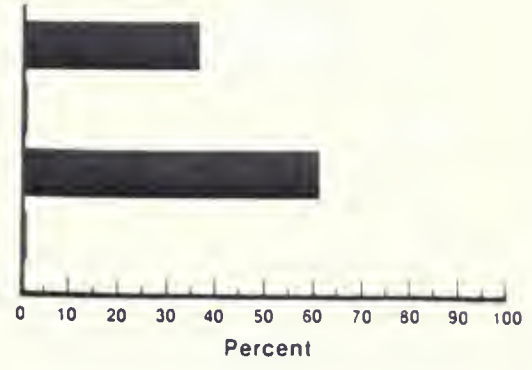
Choice of Answers	Number	Percent
ARE USING	111	55.2
PLAN TO USE	2	1.0
NOT USING/DO NOT PLAN TO USE	87	43.3
DON'T KNOW	1	.5
	201	100.0



Q-22 Are you using or do you plan to use the following measure at your place of business -- clock control thermostat?

Responses

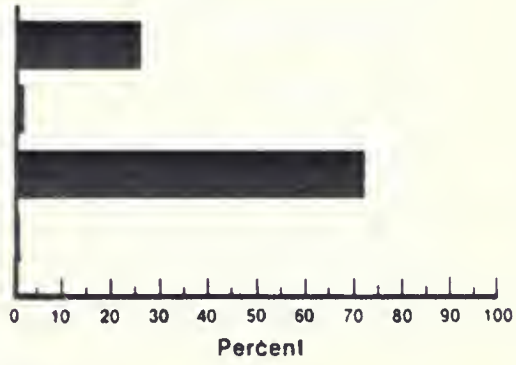
Choice of Answers	Number	Percent
ARE USING	76	37.8
PLAN TO USE	1	.5
NOT USING/DO NOT PLAN TO USE	123	61.2
DON'T KNOW	1	.5
	201	100.0



Q-23 Are you using or do you plan to use the following measure at your place of business -- storm windows?

Responses

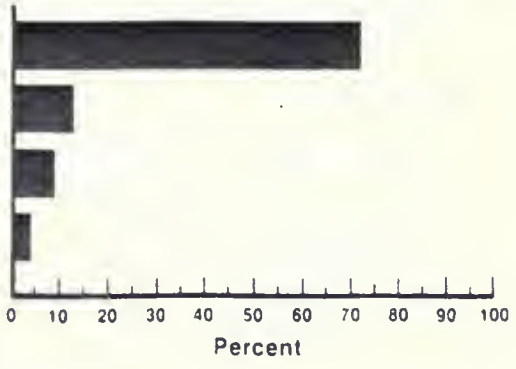
Choice of Answers	Number	Percent
ARE USING	52	25.9
PLAN TO USE	2	1.0
NOT USING/DO NOT PLAN TO USE	146	72.6
DON'T KNOW	1	.5
	201	100.0



Q-24 What percentage of your energy consumption do you think you have saved as a result of taking the above measures?(Note: See Q-9 through Q-23)

Responses

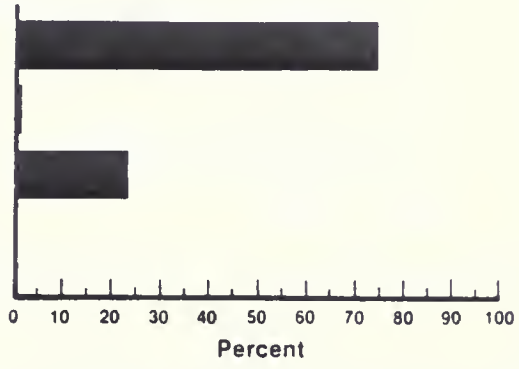
Choice of Answers	Number	Percent
LESS THAN 25%	145	72.1
MORE THAN 25%	28	13.9
NONE	19	9.5
DON'T KNOW	9	4.5
	201	100.0



Q-25 Have you taken or do you plan to take the following action to conserve energy -- boiler/heater maintenance scheduling?

Responses

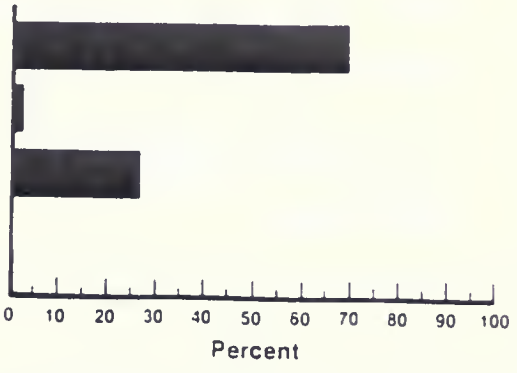
Choice of Answers	Number	Percent
HAVE TAKEN	150	74.6
PLAN TO TAKE	2	1.0
NOT TAKEN/DO NOT PLAN TO TAKE	49	24.4
DON'T KNOW	0	0.0
	201	100.0



Q-26 Have you taken or do you plan to take the following action to conserve energy -- proper sizing of boiler/heaters?

Responses

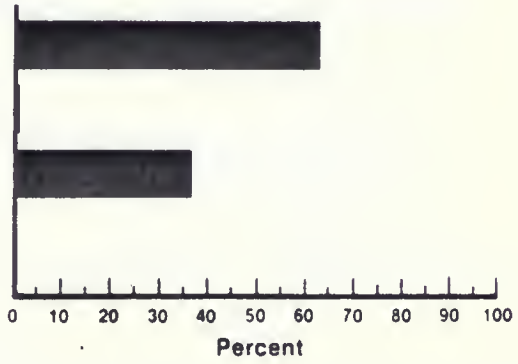
Choice of Answers	Number	Percent
HAVE TAKEN	141	70.1
PLAN TO TAKE	5	2.5
NOT TAKEN/DO NOT PLAN TO TAKE	55	27.4
DON'T KNOW	0	0.0
	201	100.0



Q-27 Have you taken or do you plan to take the following action to conserve energy -- large machinery maintenance scheduling?

Responses

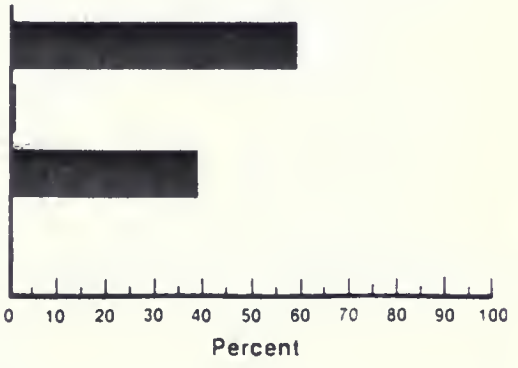
Choice of Answers	Number	Percent
HAVE TAKEN	128	63.7
PLAN TO TAKE	1	.5
NOT TAKEN/DO NOT PLAN TO TAKE	72	35.8
DON'T KNOW	0	0.0
	201	100.0



Q-28 Have you taken or do you plan to take the following action to conserve energy -- proper sizing of large machinery?

Responses

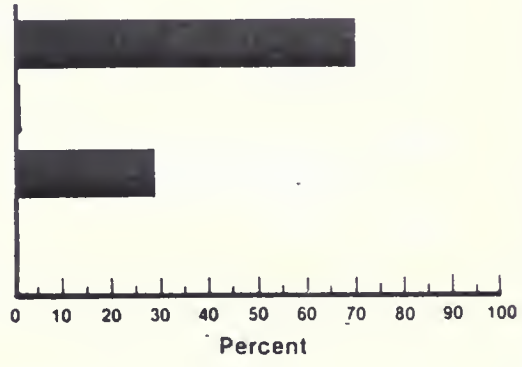
Choice of Answers	Number	Percent
HAVE TAKEN	120	59.7
PLAN TO TAKE	2	1.0
NOT TAKEN/DO NOT PLAN TO TAKE	79	39.3
DON'T KNOW	0	0.0
	201	100.0



Q-29 Have you taken or do you plan to take the following action to conserve energy -- vehicle fleet maintenance scheduling?

Responses

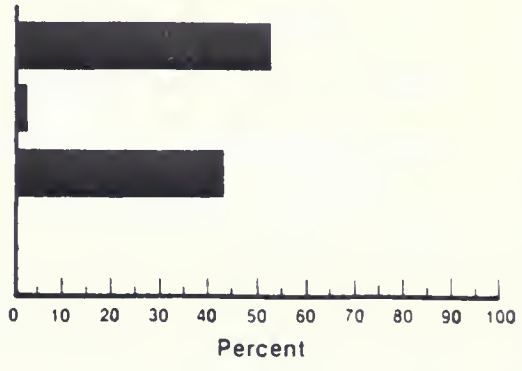
Choice of Answers	Number	Percent
HAVE TAKEN	141	70.1
PLAN TO TAKE	1	.5
NOT TAKEN/DO NOT PLAN TO TAKE	59	29.4
DON'T KNOW	0	0.0
	201	100.0



Q-30 Have you taken or do you plan to take the following action to conserve energy -- use of more energy-efficient vehicles?

Responses

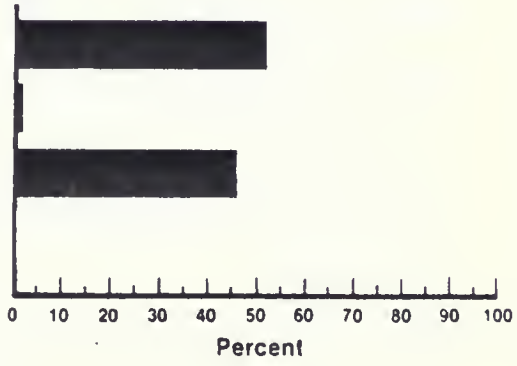
Choice of Answers	Number	Percent
HAVE TAKEN	107	53.2
PLAN TO TAKE	6	3.0
NOT TAKEN/DO NOT PLAN TO TAKE	88	43.8
DON'T KNOW	0	0.0
	201	100.0



Q-31 Have you taken or do you plan to take the following action to conserve energy -- instituted an employee suggestion program?

Responses

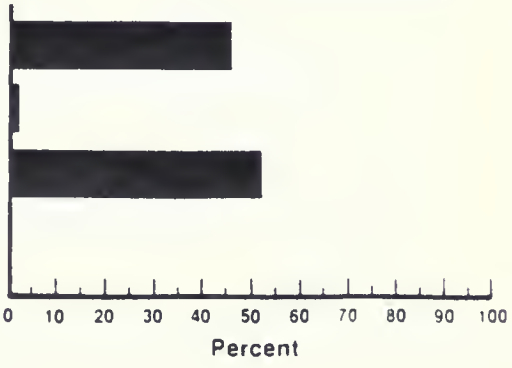
Choice of Answers	Number	Percent
HAVE TAKEN	105	52.2
PLAN TO TAKE	4	2.0
NOT TAKEN/DO NOT PLAN TO TAKE	92	45.8
DON'T KNOW	0	0.0
	201	100.0



Q-32 Have you taken or do you plan to take the following action to conserve energy -- staggered employee work schedules?

Responses

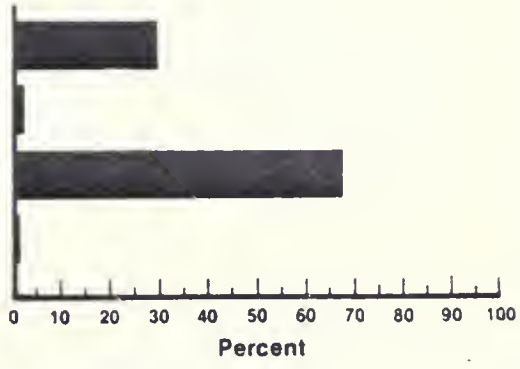
Choice of Answers	Number	Percent
HAVE TAKEN	94	46.8
PLAN TO TAKE	3	1.5
NOT TAKEN/DO NOT PLAN TO TAKE	104	51.7
DON'T KNOW	0	0.0
	201	100.0



Q-33 Have you taken or do you plan to take the following action to conserve energy -- held employee workshops on energy conservation?

Responses

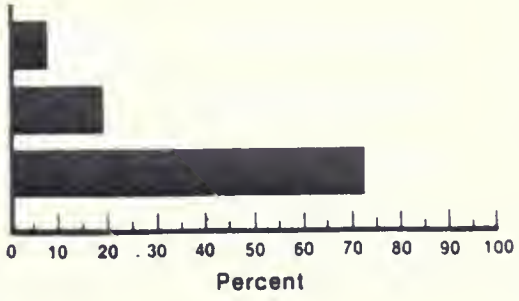
Choice of Answers	Number	Percent
HAVE TAKEN	60	29.9
PLAN TO TAKE	4	2.0
NOT TAKEN/DO NOT PLAN TO TAKE	136	67.7
DON'T KNOW	1	.5
	201	100.0



Q-34 How would you rate your knowledge of the following energy conservation technique -- cogeneration (generating electricity from process wastes)?

Responses

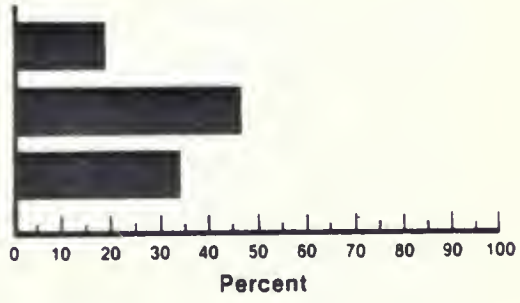
Choice of Answers	Number	Percent
VERY FAMILIAR	17	8.5
SOMEWHAT FAMILIAR	40	19.9
NOT FAMILIAR	144	71.6
	201	100.0



Q-35 How would you rate your knowledge of the following energy conservation technique -- waste heat recovery?

Responses

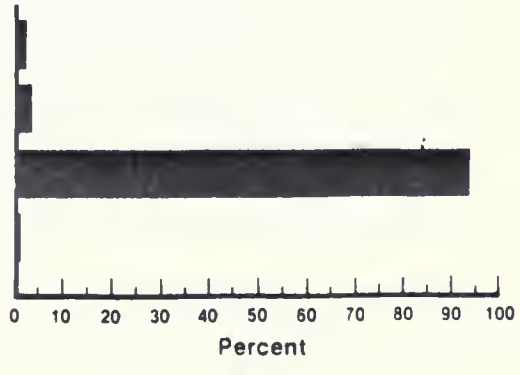
Choice of Answers	Number	Percent
VERY FAMILIAR	38	18.9
SOMEWHAT FAMILIAR	93	46.3
NOT FAMILIAR	70	34.8
	201	100.0



Q-36 Have you utilized or do you plan to utilize the following energy conservation technique -- cogeneration (generating electricity from process wastes)?

Responses

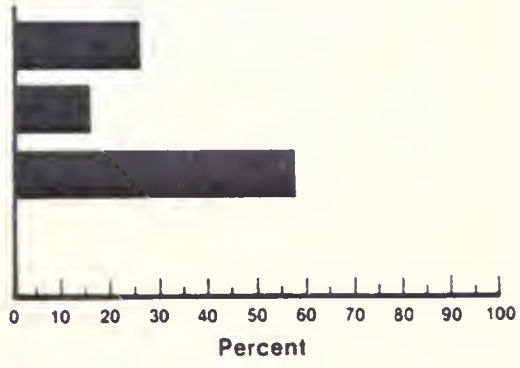
Choice of Answers	Number	Percent
HAVE UTILIZED	3	1.5
PLAN TO UTILIZE	8	4.0
NOT USED/DO NOT PLAN TO USE	189	94.0
DON'T KNOW	1	.5
	201	100.0



Q-37 Have you utilized or do you plan to utilize the following energy conservation technique -- waste heat recovery?

Responses

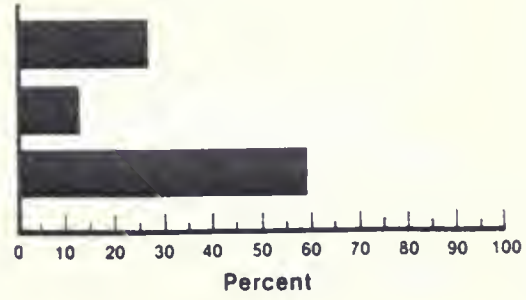
Choice of Answers	Number	Percent
HAVE UTILIZED	53	26.4
PLAN TO UTILIZE	31	15.4
NOT USED/DO NOT PLAN TO TAKE	117	58.2
DON'T KNOW	0	0.0
	201	100.0



Q-38 How many workshops or professional meetings dealing with energy conservation or renewable energy have you attended in the past year?

Responses

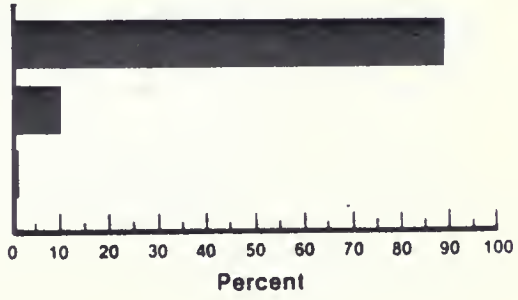
Choice of Answers	Number	Percent
ONE	54	26.9
MORE THAN ONE	27	13.4
NONE	120	59.7
	201	100.0



Q-39 Would you be willing to attend workshops related to energy conservation or renewable energy if they were available in your area?

Responses

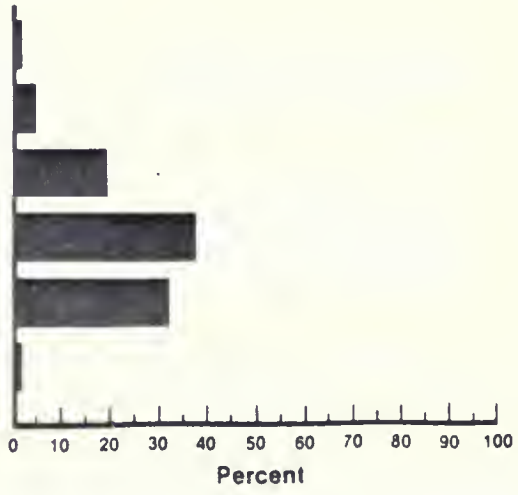
Choice of Answers	Number	Percent
YES	180	89.6
NO	20	10.0
DON'T KNOW	1	.5
	201	100.0



Q-40 Who do you feel should pay for these workshops?

Responses

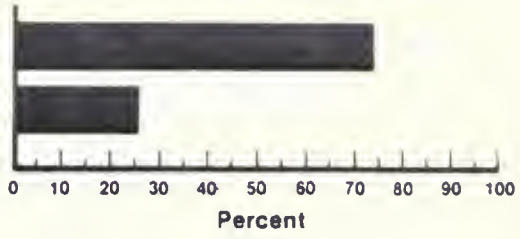
Choice of Answers	Number	Percent
STATE GOVERNMENT	4	2.0
FEDERAL GOVERNMENT	11	5.5
UTILITY COMPANIES	40	19.9
PARTICIPANTS	77	38.3
MULTIPLE RESPONSE	65	32.4
DON'T KNOW	4	2.0
	201	100.0



Q-41 Have you found information on conservation or renewable energy from professional associations/publications?

Responses

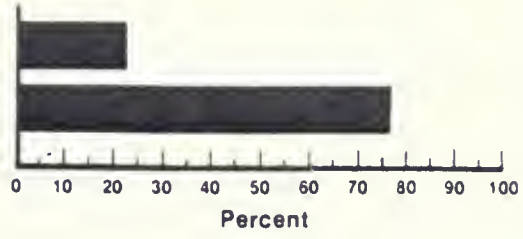
Choice of Answers	Number	Percent
YES	150	74.6
NO	51	25.4
	201	100.0



Q-42 Have you found information on conservation or renewable energy from civic organizations?

Responses

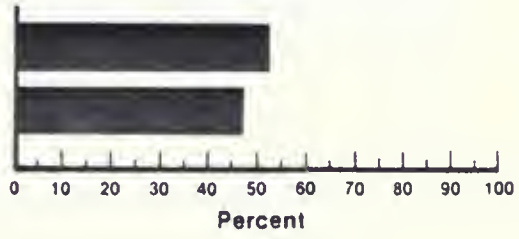
Choice of Answers	Number	Percent
YES	47	23.4
NO	154	76.6
	201	100.0



Q-43 Have you found information on conservation or renewable energy from the radio?

Responses

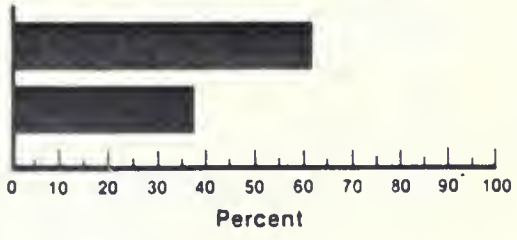
Choice of Answers	Number	Percent
YES	105	52.2
NO	96	47.8
	201	100.0



Q-44 Have you found information on conservation or renewable energy from the TV?

Responses

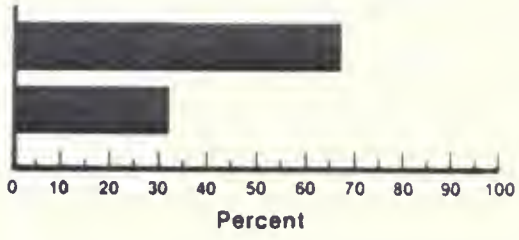
Choice of Answers	Number	Percent
YES	124	61.7
NO	77	38.3
	201	100.0



Q-45 Have you found information on conservation or renewable energy from newspapers?

Responses

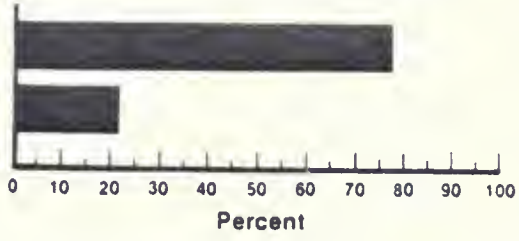
Choice of Answers	Number	Percent
YES	136	67.7
NO	65	32.3
	201	100.0



Q-46 Have you found information on conservation or renewable energy from magazines?

Responses

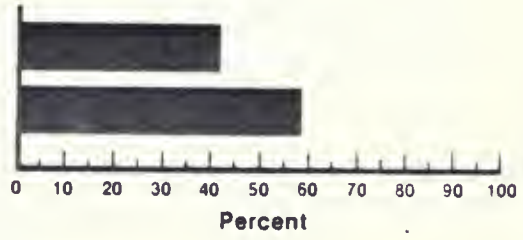
Choice of Answers	Number	Percent
YES	158	78.6
NO	43	21.4
	201	100.0



Q-47 Have you found information on conservation or renewable energy from energy workshops?

Responses

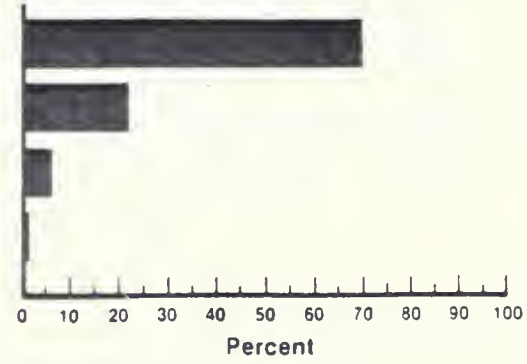
Choice of Answers	Number	Percent
YES	83	41.3
NO	118	58.7
	201	100.0



Q-48 Do you think professional associations/publications could be very useful, somewhat useful or not useful to deliver information on energy conservation and renewable energy?

Responses

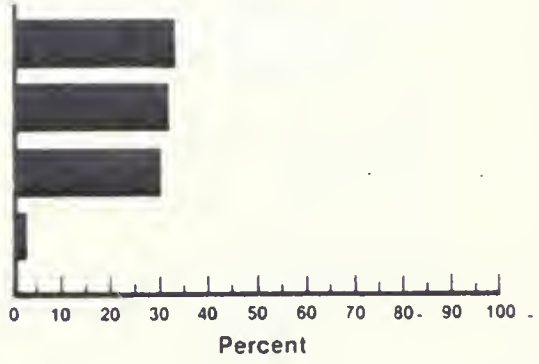
Choice of Answers	Number	Percent
VERY USEFUL	141	70.1
SOMEWHAT USEFUL	45	22.4
NOT USEFUL	13	6.5
DON'T KNOW	2	1.0
	201	100.0



Q-49 Do you think civic organizations could be very useful, somewhat useful or not useful to deliver information on energy conservation and renewable energy?

Responses

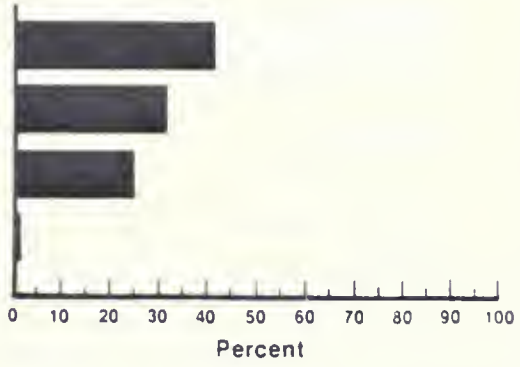
Choice of Answers	Number	Percent
VERY USEFUL	69	34.3
SOMEWHAT USEFUL	65	32.3
NOT USEFUL	61	30.3
DON'T KNOW	6	3.0
	201	100.0



Q-50 Do you think the radio could be very useful, somewhat useful or not useful to deliver information on energy conservation and renewable energy?

Responses

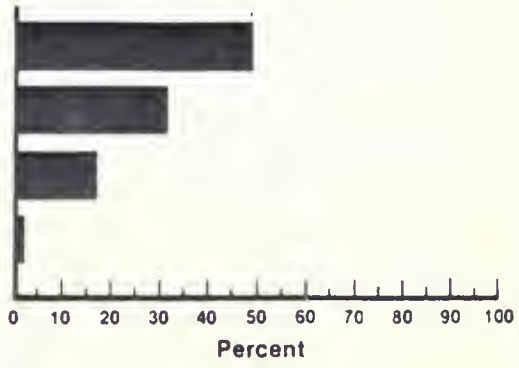
Choice of Answers	Number	Percent
VERY USEFUL	83	41.3
SOMEWHAT USEFUL	62	30.8
NOT USEFUL	51	25.4
DON'T KNOW	5	2.5
	201	100.0



Q-51 Do you think the TV could be very useful, somewhat useful or not useful to deliver information on energy conservation and renewable energy?

Responses

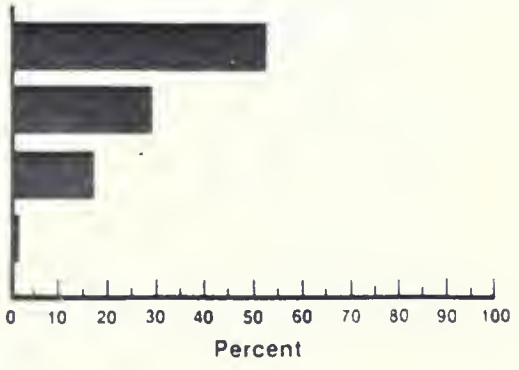
Choice of Answers	Number	Percent
VERY USEFUL	100	49.8
SOMEWHAT USEFUL	62	30.8
NOT USEFUL	35	17.4
DON'T KNOW	4	2.0
	201	100.0



Q-52 Do you think the newspapers could be very useful, somewhat useful or not useful to deliver information on energy conservation and renewable energy?

Responses

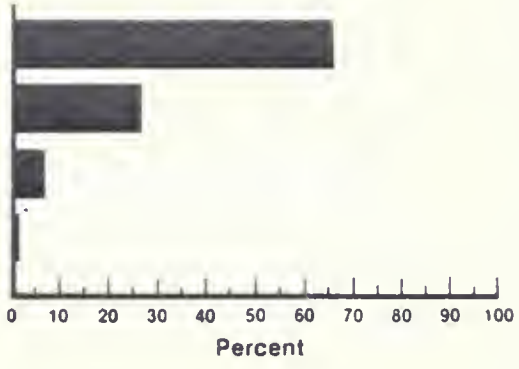
Choice of Answers	Number	Percent
VERY USEFUL	105	52.2
SOMEWHAT USEFUL	59	29.4
NOT USEFUL	34	16.9
DON'T KNOW	3	1.5
	201	100.0



Q-53 Do you think magazines could be very useful, somewhat useful or not useful to deliver information on energy conservation and renewable energy?

Responses

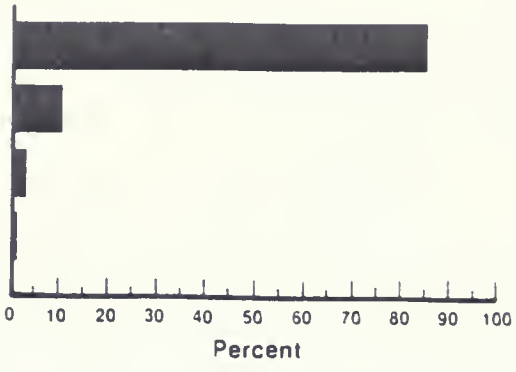
Choice of Answers	Number	Percent
VERY USEFUL	133	66.2
SOMEWHAT USEFUL	52	25.9
NOT USEFUL	14	7.0
DON'T KNOW	2	1.0
	201	100.0



Q-54 Do you think energy workshops could be very useful, somewhat useful or not useful to deliver information on energy conservation and renewable energy?

Responses

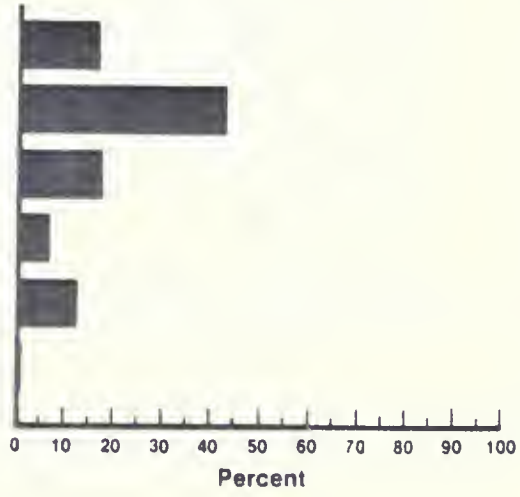
Choice of Answers	Number	Percent
VERY USEFUL	171	85.1
SOMEWHAT USEFUL	21	10.4
NOT USEFUL	7	3.5
DON'T KNOW	2	1.0
	201	100.0



Q-55 How many employees does your firm employ?

Responses

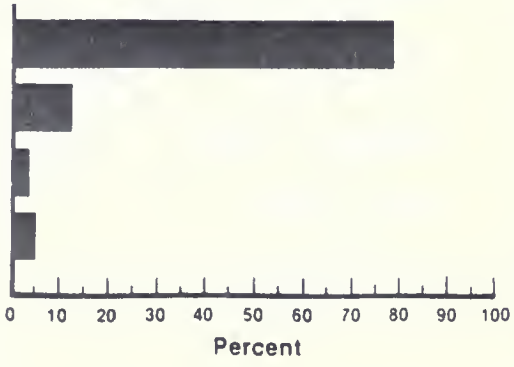
Choice of Answers	Number	Percent
LESS THAN 50	35	17.4
50 TO 99	88	43.8
100 TO 149	37	18.4
150 TO 199	15	7.5
200 OR MORE	25	12.4
DON'T KNOW	1	.5
	201	100.0



Q-56 How many major buildings does your firm utilize?

Responses

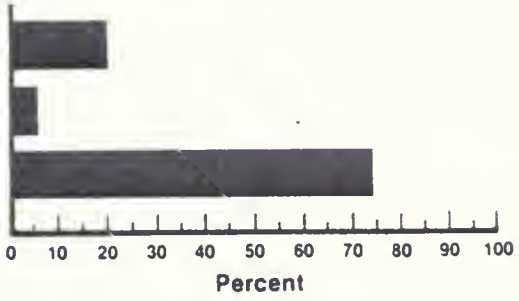
Choice of Answers	Number	Percent
1 TO 5	160	79.6
6 TO 10	23	11.4
11 TO 20	8	4.0
OVER 20	10	5.0
	201	100.0



Q-57 Which best describes your current position with your firm?

Responses

Choice of Answers	Number	Percent
OWNER	40	19.9
PARTNER	11	5.5
MANAGER/EMPLOYEE	150	74.6
	201	100.0



APPENDIX B cont'd.

SMALL BUSINESSES

1. SUMMARY OF RESULTS

2. QUESTIONNAIRES

3. SURVEY HISTOGRAMS

SUMMARY OF RESULTS
ENERGY OUTREACH SURVEY

SMALL BUSINESSES

The individuals associated with small businesses in Montana are much less familiar with energy conservation and renewable energy technologies than are those persons in the larger businesses (over 50 employees) surveyed. This reduced knowledge of energy conservation is illustrated by the fact that only 13% of the small businesses have had an energy audit. Furthermore, only 10% of the small businesses indicated that any changes have been made as a result of the energy audit recommendations.

The most popular energy conservation measures are those which are the easiest to implement, with 75% decreasing the winter thermostat setting and 60% installing caulking and weatherstripping. Fifty percent also reported installing insulation, closing off unused areas of their building, and increasing summer thermostat settings. Again, the higher technology procedures had been taken by less than 10% of the respondents. This included installing heat recovery devices, computer controls, solar heating, and clock controlled thermostats.

It is significant to note that 80% of the small businessmen have attended a workshop or meeting dealing with energy conservation during the past year, but only 70% would be willing to attend another such meeting. These figures are the inverse of those reported by large businessmen where the percentages were 60% and 90%, respectively. Forty-five percent indicated participants should pay for the workshops and 27% believed the utility companies should pay.

The sources of energy information which are most frequently cited by the small businessmen include magazines, newspapers, and television (65 to 75%). Civic organizations and energy workshops were the least mentioned source of energy information (20%). Professional associations were also cited (50%) but not nearly as frequently as by the respondents in large businesses.

Sixty-five percent of the respondents own the building in which their business is located and 68% of the buildings are heated by natural gas. Eighty percent of the respondents indicated that they were owners of the business.

Small businessmen appear to exhibit the same independence which has made Montanans legendary. They have attended and received information on energy conservation and renewable energy methodology, but they have only implemented the simplest possible measures. They are not particularly interested in special workshops and other education programs, but do regularly read newspaper and magazine articles which they feel will help them.

DEPARTMENT OF COMMERCE

TED SCHWINDEN GOVERNOR

CAPITOL STATION
1424 9TH AVENUE

STATE OF MONTANA

4061449-3494

HELENA MONTANA 59620 0401

December 3, 1982

Dear Businessperson:

The Montana Department of Natural Resources and Conservation (DNRC) is conducting a survey to assist in targeting its information, education, and outreach activities for renewable energy and energy conservation. Your business has been randomly selected to be part of this survey.

The Montana Department of Commerce is assisting in this survey because of it's potential for assisting Montana businesses. I encourage you to take a few minutes to complete the attached questionnaire. In the end, all of us stand to be the beneficiary of improved delivery of government services.

Please accept my personal appreciation for your cooperation with this worthwhile project.

Sincerely,

Gary Buchanan
DIRECTOR

attachment

ENERGY OUTREACH SURVEY
SMALL BUSINESS

INSTRUCTIONS: Please put an "X" in the appropriate box for each question.

Q-1 Has an energy audit been conducted at your business?

1) YES ☐ 1 (1)

2) NO ☐ 2

(a) If YES, to what extent did the audit lead to changes in energy use?

1) EXTENSIVE CHANGES ☐ 1

2) SOME CHANGES ☐ 2 (2)

3) NO CHANGES ☐ 3

Q-2 How would you rate your knowledge of the following energy conservation measures?

	VERY FAMILIAR 1	SOMEWHAT FAMILIAR 2	NOT FAMILIAR 3	
1) INSULATION, CAULKING, WEATHERSTRIPPING	☐	☐	☐	(3)
2) HEATING SYSTEM MAINTENANCE	☐	☐	☐	(4)
3) PASSIVE SOLAR HEATING	☐	☐	☐	(5)
4) ACTIVE SOLAR HEATING	☐	☐	☐	(6)
5) LIGHTING MODIFICATIONS	☐	☐	☐	(7)

Q-3 Which of the following energy conservation measures have you used or do you plan to use in your business?

	USED/NOW USING 1	PLAN TO USE 2	DO NOT PLAN TO USE 3	
1) INCREASED THERMOSTAT SETTING IN SUMMER	☐	☐	☐	(8)
2) DECREASED THERMOSTAT SETTING IN WINTER	☐	☐	☐	(9)
3) MADE FURNACE/BOILER MODIFICATIONS	☐	☐	☐	(10)
4) INSTALLED HEAT RECOVERY DEVICES	☐	☐	☐	(11)
5) INSTALLED COMPUTER CONTROL SYSTEMS	☐	☐	☐	(12)
6) INSULATED BOILERS, FURNACES, DUCTS, PIPES, WATER HEATER	☐	☐	☐	(13)
7) UPGRADED LIGHTING SYSTEM	☐	☐	☐	(14)
8) INSTALLED CAULKING OR WEATHERSTRIPPING	☐	☐	☐	(15)
9) INSTALLED INSULATION IN CEILING, FLOOR, OR WALLS	☐	☐	☐	(16)
10) INSTALLED DOUBLE DOOR ENTRYWAY	☐	☐	☐	(17)
11) INSTALLED STORM WINDOWS	☐	☐	☐	(18)
12) CLOSED OFF UNUSED OR SLIGHTLY USED PORTIONS OF BUILDING	☐	☐	☐	(19)
13) INSTALLED INSULATED WINDOW COVERS	☐	☐	☐	(20)
14) ADDED CLOCK CONTROL THERMOSTAT	☐	☐	☐	(21)
15) PASSIVE SOLAR HEATING	☐	☐	☐	(22)
16) ACTIVE SOLAR HEATING	☐	☐	☐	(23)
17) DOUBLE OR TRIPLE PANE WINDOWS	☐	☐	☐	(24)

Q-4 What percentage of your energy consumption do you think you have saved or will save as a result of taking any of the above measures?

1) MORE THAN 25% ☐ 1
2) LESS THAN 25% ☐ 2 (25)
3) NONE ☐ 3

Q-5 How many workshops or professional meetings dealing with energy conservation or renewable energy have you attended in the past year?

1) MORE THAN ONE ☐ 1
2) ONE ☐ 2 (26)
3) NONE ☐ 3

Q-6 Would you be willing to attend workshops related to energy conservation or renewable energy if they were available in your area?

1) YES ☐ 1
2) NO ☐ 2 (27)

Q-7 Who do you feel should pay for these workshops?

1) STATE GOVERNMENT ☐ 1
2) FEDERAL GOVERNMENT ☐ 2 (28)
3) UTILITY COMPANIES ☐ 3
4) PARTICIPANTS ☐ 4

Q-8 Have you found information on conservation or renewable energy from any of the following sources?

		YES 1	NO 2	
1)	PROFESSIONAL ASSOCIATIONS/ PUBLICATIONS	☐	☐	(29)
2)	CIVIC ORGANIZATIONS	☐	☐	(30)
3)	RADIO	☐	☐	(31)
4)	TV	☐	☐	(32)
5)	NEWSPAPERS	☐	☐	(33)
6)	MAGAZINES	☐	☐	(34)
7)	ENERGY WORKSHOPS	☐	☐	(35)

Q-9 Which of the following sources do you think could best be used to deliver information on energy conservation and renewable energy?

	VERY HELPFUL 1	SOMEWHAT HELPFUL 2	NOT HELPFUL 3	
1) PROFESSIONAL ASSOCIATIONS/ PUBLICATIONS	☐	☐	☐	(36)
2) CIVIC ORGANIZATIONS	☐	☐	☐	(37)
3) RADIO	☐	☐	☐	(38)
4) TV	☐	☐	☐	(39)
5) NEWSPAPERS	☐	☐	☐	(40)
6) MAGAZINES	☐	☐	☐	(41)
7) ENERGY WORKSHOPS	☐	☐	☐	(42)

Q-10 Do you rent, lease, or own the building in which your business is located?

1) RENT ☐ 1
2) LEASE ☐ 2 (43)
3) OWN ☐ 3

Q-11 If you rent or lease your building, are you responsible for paying your energy costs?

1) YES ☐ 1
2) NO ☐ 2 (44)

(a) If YES, have you taken any measures to reduce your energy consumption?

1) YES ☐ 1
2) NO ☐ 2 (45)

Is there anything else you would like to tell us that would assist us in delivering energy conservation and renewable energy information? If so, please use this space for that purpose.

Your contribution to this effort is greatly appreciated. If you would like a summary of results, please print your name and address on the back of the return envelope (NOT on this questionnaire), and we will mail you a copy.

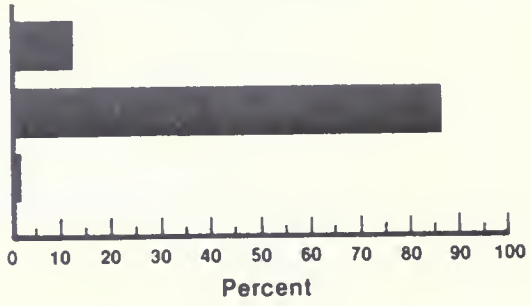
SURVEY HISTOGRAMS

ENERGY OUTREACH SURVEY
SMALL BUSINESS

Q-1 Has an energy audit been conducted at your business?

Responses

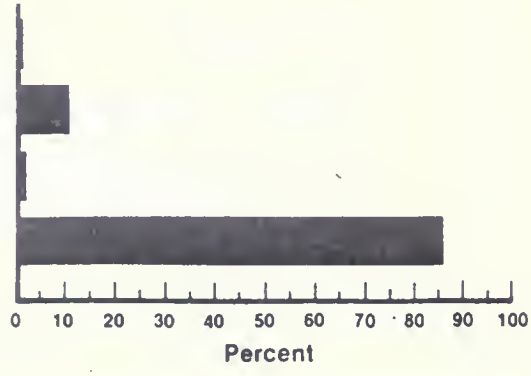
Choice of Answers	Number	Percent
YES	55	12.8
NO	368	85.8
NO RESPONSE	6	1.4
	429	100.0



Q-2 If YES, to what extent did the audit lead to changes in energy use?

Responses

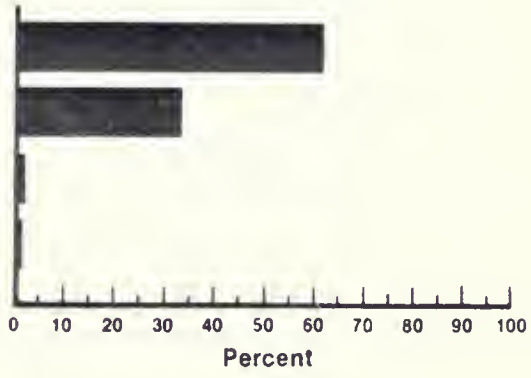
Choice of Answers	Number	Percent
EXTENSIVE CHANGES	3	.7
SOME CHANGES	45	10.5
NO CHANGES	11	2.6
NO RESPONSE	370	86.2
	429	100.0



Q-3 How would you rate your knowledge of the following energy conservation measure -- insulation, caulking, weatherstripping?

Responses

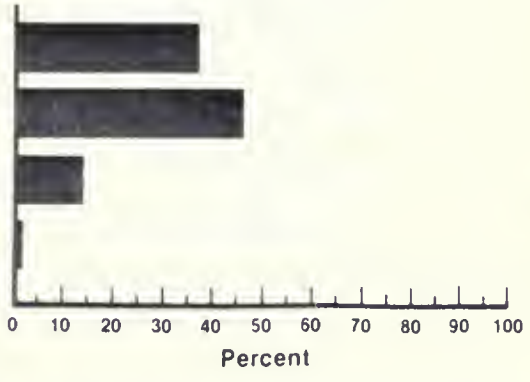
Choice of Answers	Number	Percent
VERY FAMILIAR	267	62.2
SOMEWHAT FAMILIAR	145	33.8
NOT FAMILIAR	12	2.8
NO RESPONSE	5	1.2
	429	100.0



Q-4 How would you rate your knowledge of the following energy conservation measure -- heating system maintenance?

Responses

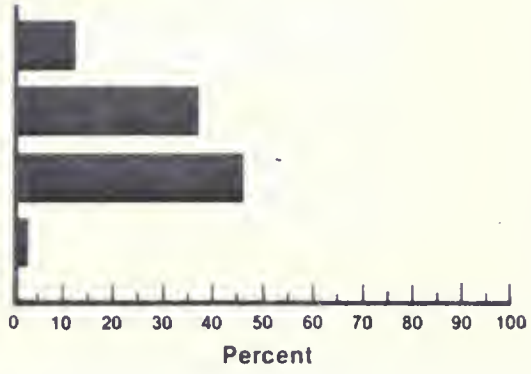
Choice of Answers	Number	Percent
VERY FAMILIAR	161	37.5
SOMEWHAT FAMILIAR	199	46.4
NOT FAMILIAR	62	14.5
NO RESPONSE	7	1.6
	429	100.0



Q-5 How would you rate your knowledge of the following energy conservation measure -- passive solar heating?

Responses

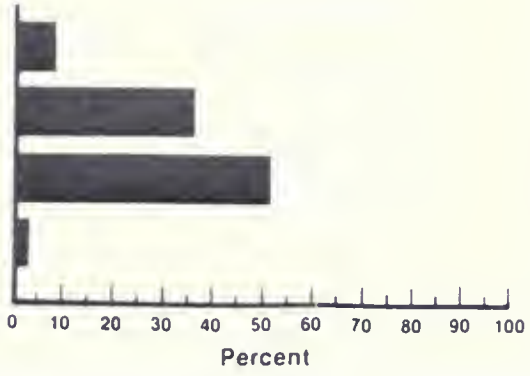
Choice of Answers	Number	Percent
VERY FAMILIAR	57	13.3
SOMEWHAT FAMILIAR	162	37.8
NOT FAMILIAR	197	45.9
NO RESPONSE	13	3.0
	429	100.0



Q-6 How would you rate your knowledge of the following energy conservation measure -- active solar heating?

Responses

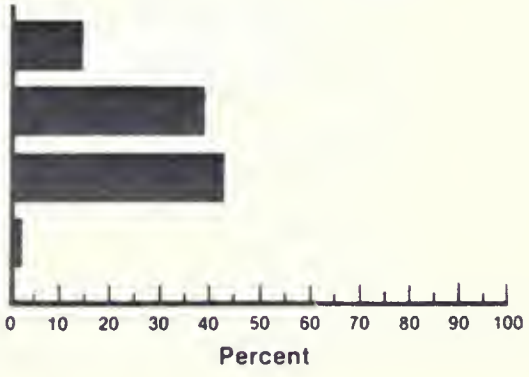
Choice of Answers	Number	Percent
VERY FAMILIAR	38	8.9
SOMEWHAT FAMILIAR	155	36.1
NOT FAMILIAR	221	51.5
NO RESPONSE	15	3.5
	429	100.0



Q-7 How would you rate your knowledge of the following energy conservation measure -- lighting modifications?

Responses

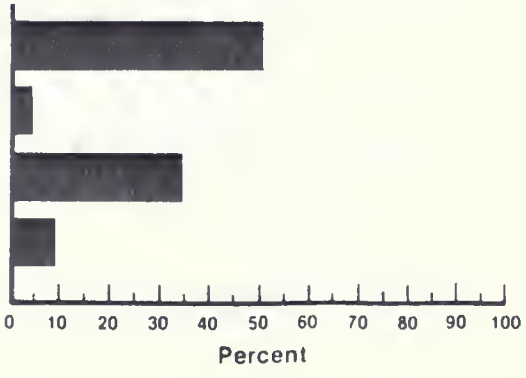
Choice of Answers	Number	Percent
VERY FAMILIAR	62	14.5
SOMEWHAT FAMILIAR	170	39.6
NOT FAMILIAR	187	43.6
NO RESPONSE	10	2.3
	429	100.0



Q-8 Have you used or do you plan to use the following energy conservation measure in your business -- increased thermostat setting in summer?

Responses

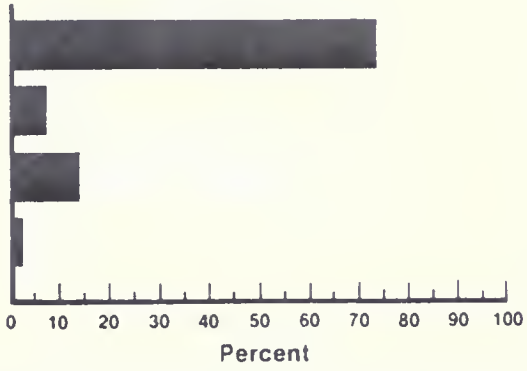
Choice of Answers	Number	Percent
USED/NOW USING	216	50.3
PLAN TO USE	21	4.9
DO NOT PLAN TO USE	150	35.0
NO RESPONSE	42	9.8
	429	100.0



Q-9 Have you used or do you plan to use the following energy conservation measure in your business -- decreased thermostat setting in winter?

Responses

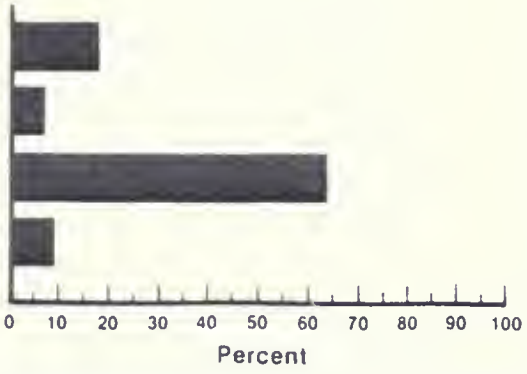
Choice of Answers	Number	Percent
USED/NOW USING	320	74.6
PLAN TO USE	35	8.2
DO NOT PLAN TO USE	63	14.7
NO RESPONSE	11	2.6
	429	100.0



Q-10 Have you used or do you plan to use the following energy conservation measure in your business -- made furnace/boiler modifications?

Responses

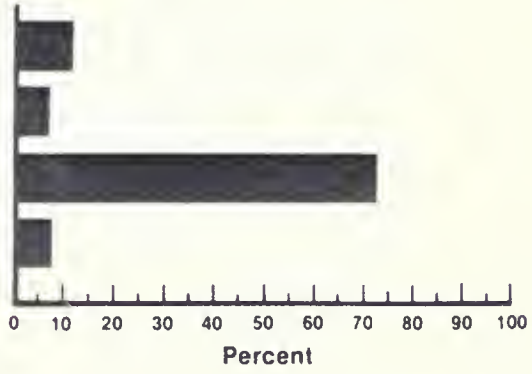
Choice of Answers	Number	Percent
USED/NOW USING	80	18.6
PLAN TO USE	32	7.5
DO NOT PLAN TO USE	277	64.6
NO RESPONSE	40	9.3
	429	100.0



Q-11 Have you used or do you plan to use the following energy conservation measure in your business -- installed heat recovery devices?

Responses

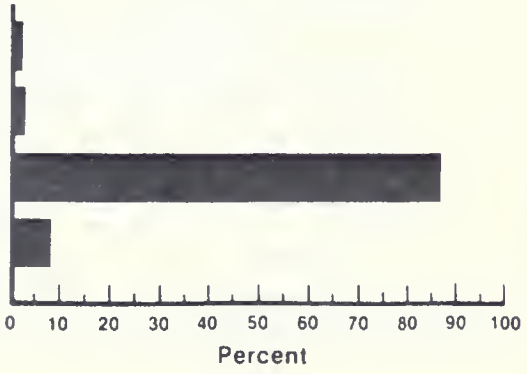
Choice of Answers	Number	Percent
USED/NOW USING	48	11.2
PLAN TO USE	31	7.2
DO NOT PLAN TO USE	314	73.2
NO RESPONSE	36	8.4
	429	100.0



Q-12 Have you used or do you plan to use the following energy conservation measure in your business -- installed computer control systems?

Responses

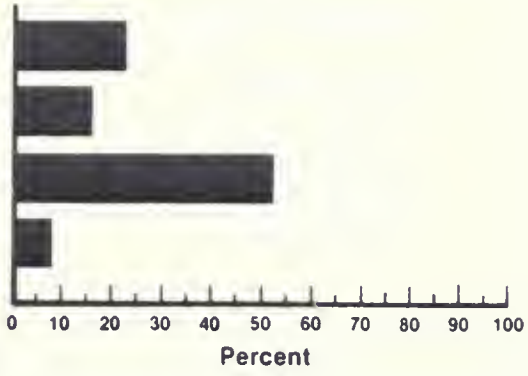
Choice of Answers	Number	Percent
USED/NOW USING	8	1.9
PLAN TO USE	11	2.6
DO NOT PLAN TO USE	372	86.7
NO RESPONSE	38	8.8
	429	100.0



Q-13 Have you used or do you plan to use the following energy conservation measure in your business -- insulated boilers, furnaces, ducts, pipes, water heater?

Responses

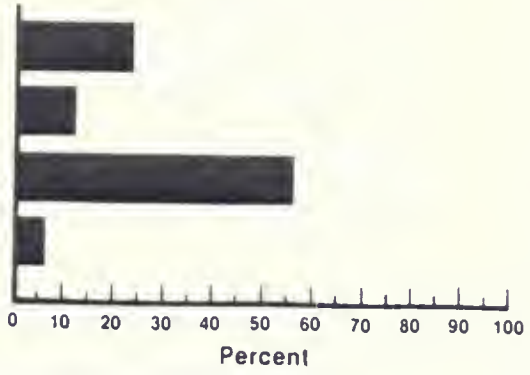
Choice of Answers	Number	Percent
USED/NOW USING	100	23.3
PLAN TO USE	66	15.4
DO NOT PLAN TO USE	226	52.7
NO RESPONSE	37	8.6
	429	100.0



Q-14 Have you used or do you plan to use the following energy conservation measure in your business -- upgraded lighting system?

Responses

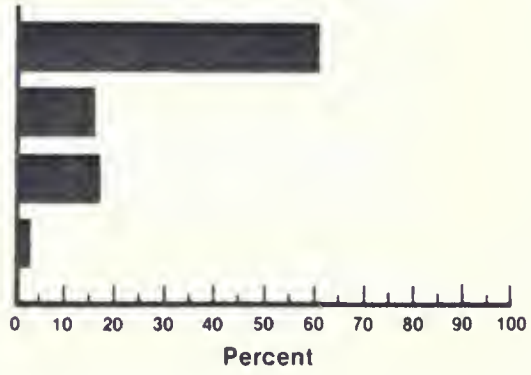
Choice of Answers	Number	Percent
USED/NOW USING	103	24.0
PLAN TO USE	55	12.8
DO NOT PLAN TO USE	241	56.2
NO RESPONSE	30	7.0
	429	100.0



Q-15 Have you used or do you plan to use the following energy conservation measure in your business -- installed caulking or weatherstripping?

Responses

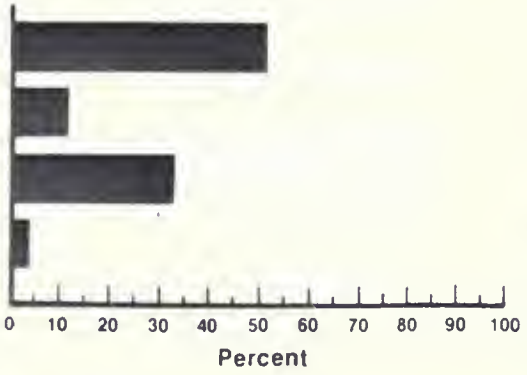
Choice of Answers	Number	Percent
USED/NOW USING	261	60.8
PLAN TO USE	73	17.0
DO NOT PLAN TO USE	79	18.4
NO RESPONSE	16	3.7
	429	100.0



Q-16 Have you used or do you plan to use the following energy conservation measure in your business -- installed insulation in ceiling, floor or walls?

Responses

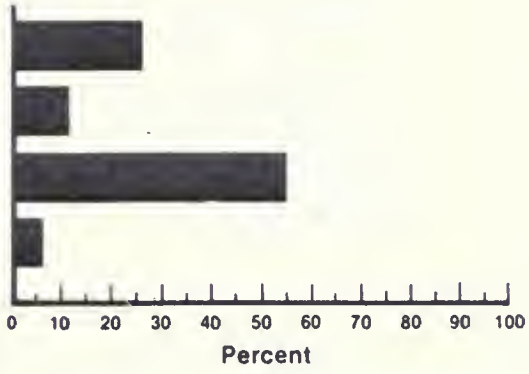
Choice of Answers	Number	Percent
USED/NOW USING	219	51.0
PLAN TO USE	48	11.2
DO NOT PLAN TO USE	143	33.3
NO RESPONSE	19	4.4
	429	100.0



Q-17 Have you used or do you plan to use the following energy conservation measure in your business -- installed double door entryway?

Responses

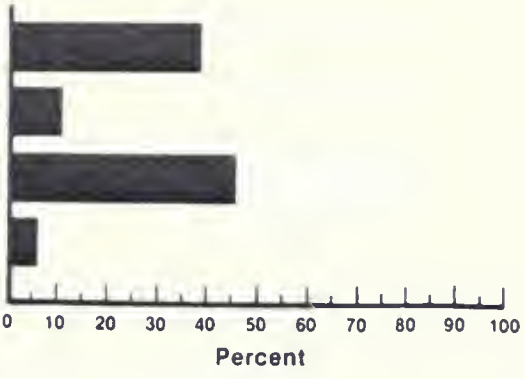
Choice of Answers	Number	Percent
USED/NOW USING	113	26.3
PLAN TO USE	53	12.4
DO NOT PLAN TO USE	236	55.0
NO RESPONSE	27	6.3
	429	100.0



Q-18 Have you used or do you plan to use the following energy conservation measure in your business -- installed storm windows?

Responses

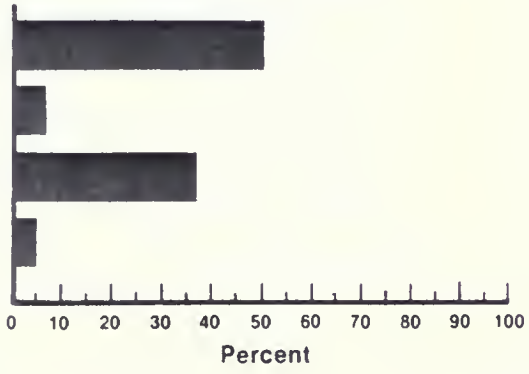
Choice of Answers	Number	Percent
USED/NOW USING	165	38.5
PLAN TO USE	44	10.3
DO NOT PLAN TO USE	196	45.7
NO RESPONSE	24	5.6
	429	100.0



Q-19 Have you used or do you plan to use the following energy conservation measure in your business -- closed off unused or slightly used portions of building?

Responses

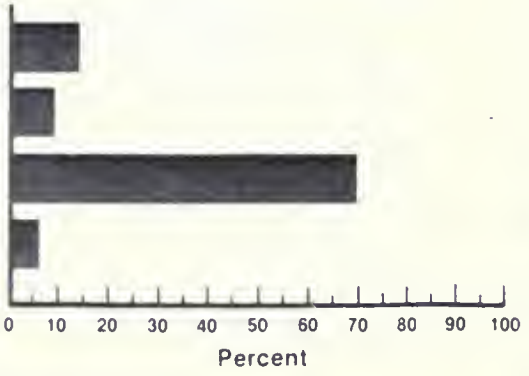
Choice of Answers	Number	Percent
USED/NOW USING	218	50.8
PLAN TO USE	29	6.8
DO NOT PLAN TO USE	160	37.3
NO RESPONSE	22	5.1
	429	100.0



Q-20 Have you used or do you plan to use the following energy conservation measure in your business -- installed insulated window covers?

Responses

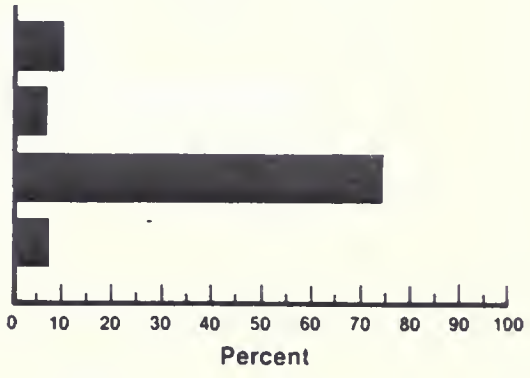
Choice of Answers	Number	Percent
USED/NOW USING	60	14.0
PLAN TO USE	42	9.8
DO NOT PLAN TO USE	300	69.9
NO RESPONSE	27	6.3
	429	100.0



Q-21 Have you used or do you plan to use the following energy conservation measure in your business -- added clock control thermostat?

Responses

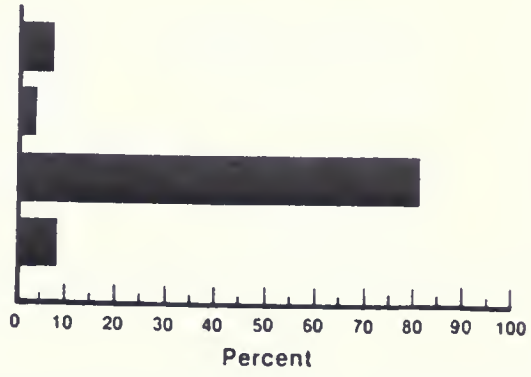
Choice of Answers	Number	Percent
USED/NOW USING	44	10.3
PLAN TO USE	31	7.2
DO NOT PLAN TO USE	321	74.8
NO RESPONSE	33	7.7
	429	100.0



Q-22 Have you used or do you plan to use the following energy conservation measure in your business -- passive solar heating?

Responses

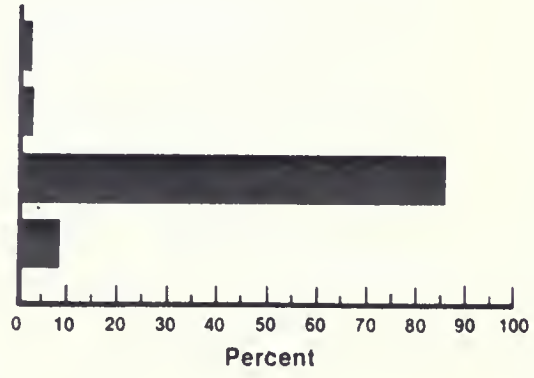
Choice of Answers	Number	Percent
USED/NOW USING	31	7.2
PLAN TO USE	18	4.2
DO NOT PLAN TO USE	345	80.4
NO RESPONSE	35	8.2
	429	100.0



Q-23 Have you used or do you plan to use the following energy conservation measure in your business -- active solar heating?

Responses

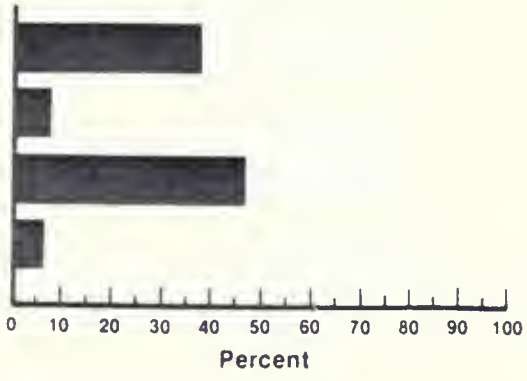
Choice of Answers	Number	Percent
USED/NOW USING	11	2.6
PLAN TO USE	13	3.0
DO NOT PLAN TO USE	367	85.5
NO RESPONSE	38	8.8
	429	100.0



Q-24 Have you used or do you plan to use the following energy conservation measure in your business -- double or triple pane windows?

Responses

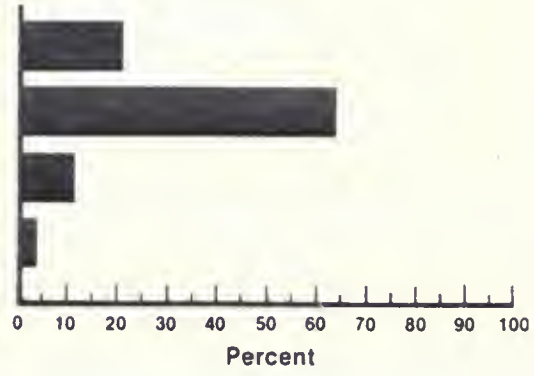
Choice of Answers	Number	Percent
USED/NOW USING	165	38.5
PLAN TO USE	34	7.9
DO NOT PLAN TO USE	203	47.3
NO RESPONSE	27	6.3
	429	100.0



Q-25 What percentage of your energy consumption do you think you have saved or will save as a result of taking any of the above measures? (Note: See Q-8 through Q-24)

Responses

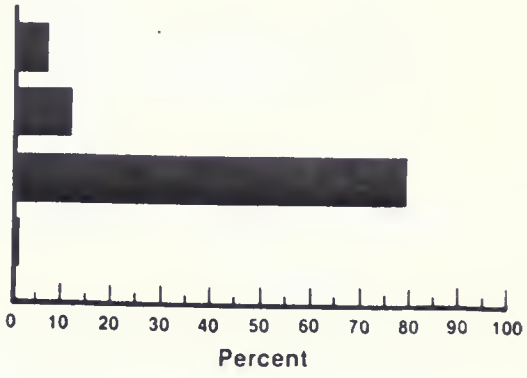
Choice of Answers	Number	Percent
MORE THAN 25%	90	21.0
LESS THAN 25%	274	63.9
NONE	49	11.4
NO RESPONSE	16	3.8
	429	100.0



Q-26 How many workshops or professional meetings dealing with energy conservation or renewable energy have you attended in the past year?

Responses

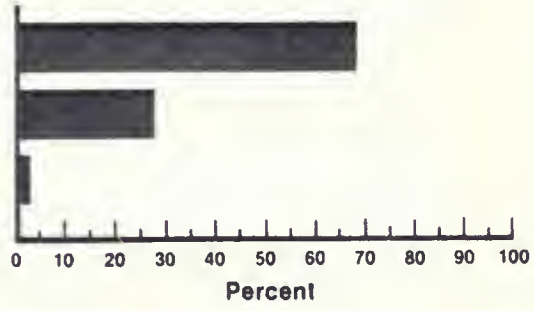
Choice of Answers	Number	Percent
MORE THAN ONE	33	7.7
ONE	51	11.9
NONE	342	79.7
NO RESPONSE	3	.7
	429	100.0



Q-27 Would you be willing to attend workshops related to energy conservation or renewable energy if they were available in your area?

Responses

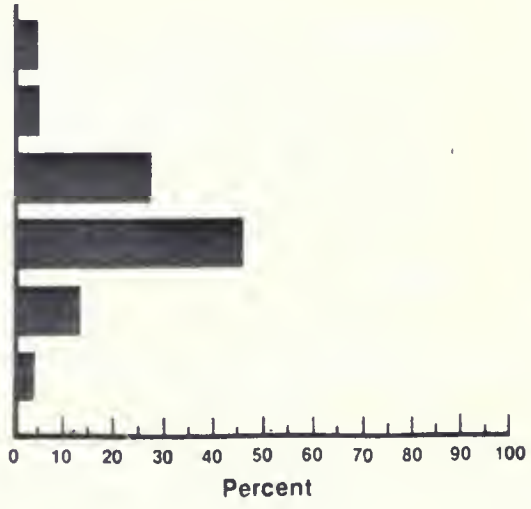
Choice of Answers	Number	Percent
YES	295	68.8
NO	121	28.2
NO RESPONSE	13	3.0
	429	100.0



Q-28 Who do you feel should pay for these workshops?

Responses

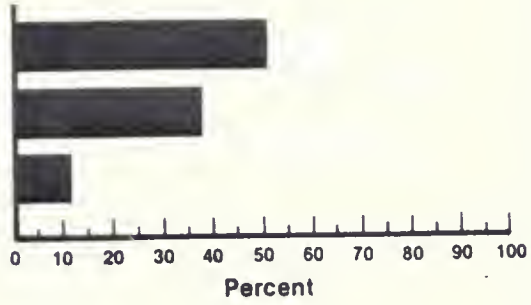
Choice of Answers	Number	Percent
STATE GOVERNMENT	20	4.7
FEDERAL GOVERNMENT	21	4.9
UTILITY COMPANIES	115	26.8
PARTICIPANTS	195	45.5
MULTIPLE RESPONSE	59	13.8
NO RESPONSE	19	4.4
	429	100.0



Q-29 Have you found information on conservation or renewable energy from professional associations/publications?

Responses

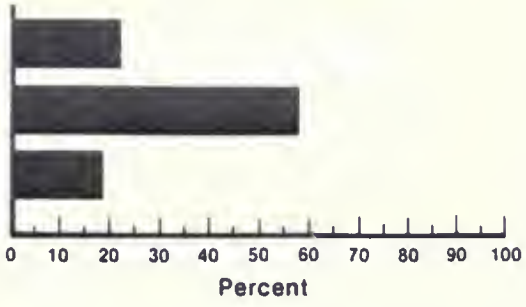
Choice of Answers	Number	Percent
YES	215	50.1
NO	165	38.5
NO RESPONSE	49	11.4
	429	100.0



Q-30 Have you found information on conservation or renewable energy from civic organizations?

Responses

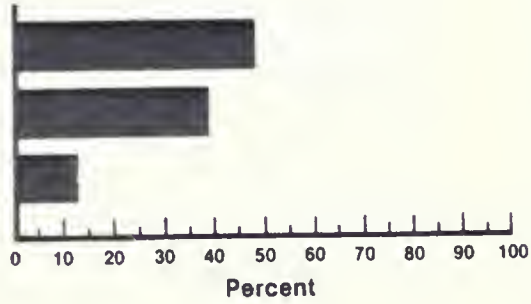
Choice of Answers	Number	Percent
YES	96	22.4
NO	251	58.5
NO RESPONSE	82	19.1
	429	100.0



Q-31 Have you found information on conservation or renewable energy from the radio?

Responses

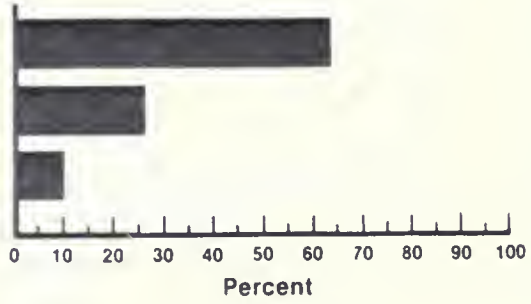
Choice of Answers	Number	Percent
YES	207	48.3
NO	168	39.2
NO RESPONSE	54	12.6
	429	100.0



Q-32 Have you found information on conservation or renewable energy from the TV?

Responses

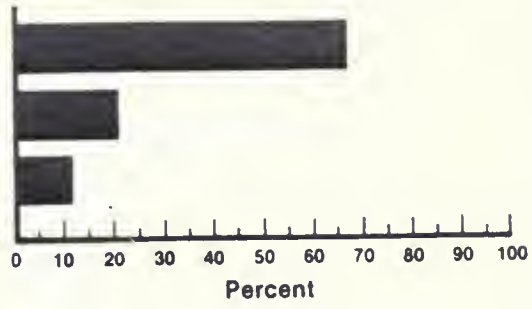
Choice of Answers	Number	Percent
YES	276	64.3
NO	110	25.6
NO RESPONSE	43	10.0
	429	100.0



Q-33 Have you found information on conservation or renewable energy from newspapers?

Responses

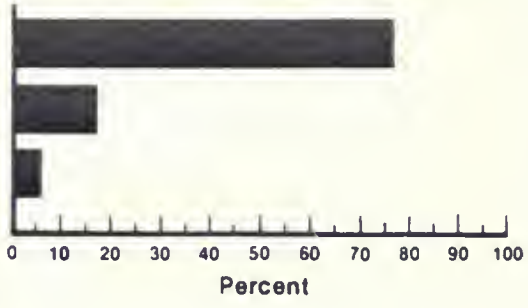
Choice of Answers	Number	Percent
YES	293	68.3
NO	89	20.7
NO RESPONSE	47	11.0
	429	100.0



Q-34 Have you found information on conservation or renewable energy from magazines?

Responses

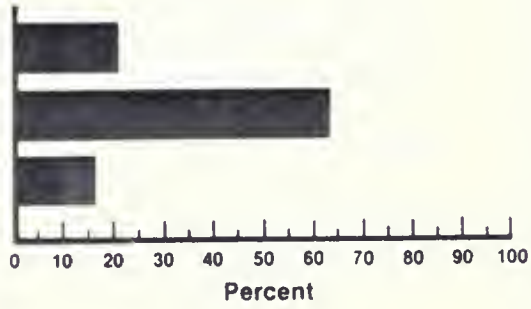
Choice of Answers	Number	Percent
YES	330	76.9
NO	73	17.0
NO RESPONSE	26	6.1
	429	100.0



Q-35 Have you found information on conservation or renewable energy from energy workshops?

Responses

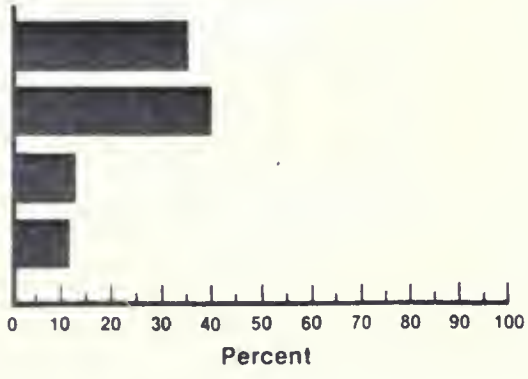
Choice of Answers	Number	Percent
YES	88	20.5
NO	271	63.2
NO RESPONSE	70	16.3
	429	100.0



Q-36 How helpful do you think professional associations/publications are in delivering information on energy conservation and renewable energy?

Responses

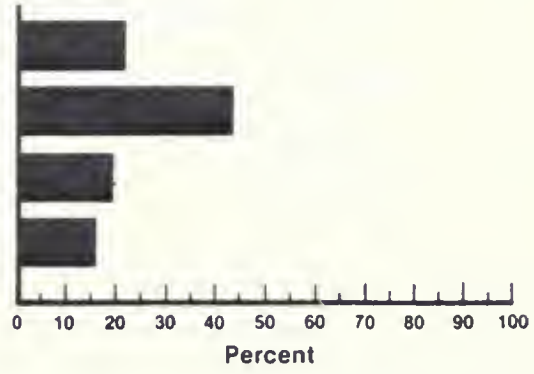
Choice of Answers	Number	Percent
VERY HELPFUL	152	35.4
SOMEWHAT HELPFUL	171	39.9
NOT HELPFUL	55	12.8
NO RESPONSE	51	11.9
	429	100.0



Q-37 How helpful do you think civic organizations are in delivering information on energy conservation and renewable energy?

Responses

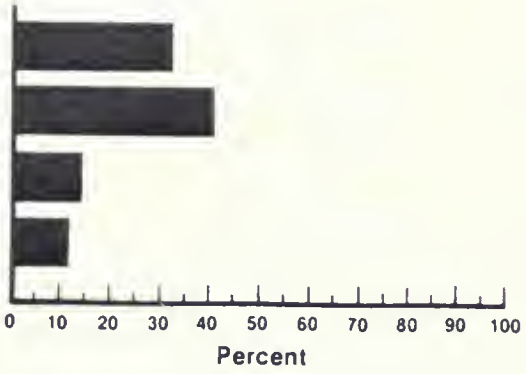
Choice of Answers	Number	Percent
VERY HELPFUL	92	21.4
SOMEWHAT HELPFUL	189	44.1
NOT HELPFUL	83	19.3
NO RESPONSE	65	15.2
	429	100.0



Q-38 How helpful do you think the radio is in delivering information on energy conservation and renewable energy?

Responses

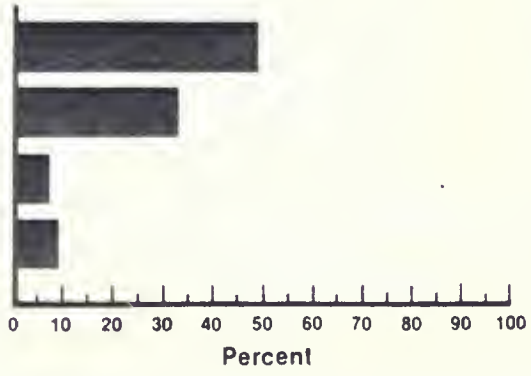
Choice of Answers	Number	Percent
VERY HELPFUL	140	32.6
SOMEWHAT HELPFUL	174	40.6
NOT HELPFUL	63	14.7
NO RESPONSE	52	12.1
	429	100.0



Q-39 How helpful do you think the TV is in delivering information on energy conservation and renewable energy?

Responses

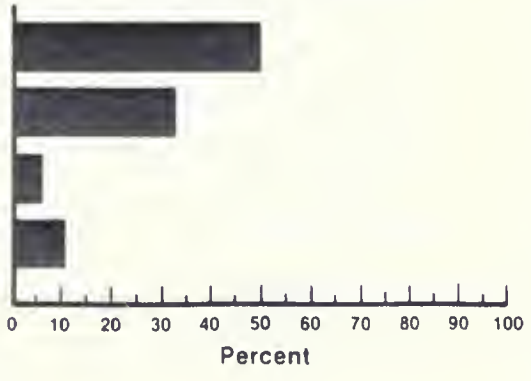
Choice of Answers	Number	Percent
VERY HELPFUL	210	49.0
SOMEWHAT HELPFUL	145	33.8
NOT HELPFUL	33	7.7
NO RESPONSE	41	9.6
	429	100.0



Q-40 How helpful do you think newspapers are in delivering information on energy conservation and renewable energy?

Responses

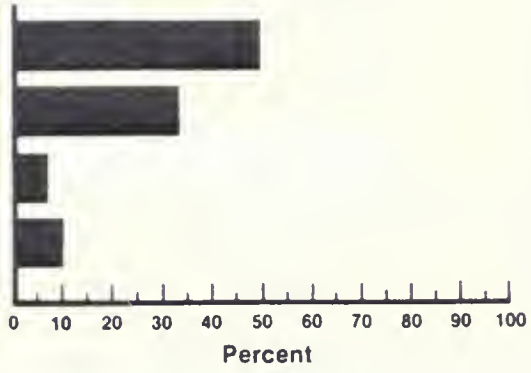
Choice of Answers	Number	Percent
VERY HELPFUL	214	49.9
SOMEWHAT HELPFUL	145	33.8
NOT HELPFUL	26	6.1
NO RESPONSE	44	10.3
	429	100.0



Q-41 How helpful do you think magazines are in delivering information on energy conservation and renewable energy?

Responses

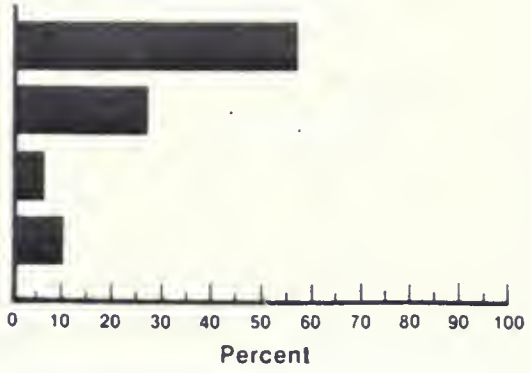
Choice of Answers	Number	Percent
VERY HELPFUL	210	49.0
SOMEWHAT HELPFUL	146	34.0
NOT HELPFUL	30	7.0
NO RESPONSE	43	10.0
	429	100.0



Q-42 How helpful do you think energy workshops are in delivering information on energy conservation and renewable energy?

Responses

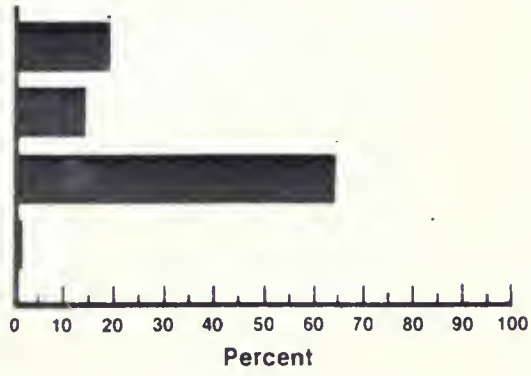
Choice of Answers	Number	Percent
VERY HELPFUL	243	56.6
SOMEWHAT HELPFUL	117	27.3
NOT HELPFUL	26	6.1
NO RESPONSE	43	10.0
	429	100.0



Q-43 Do you rent, lease, or own the building in which your business is located?

Responses

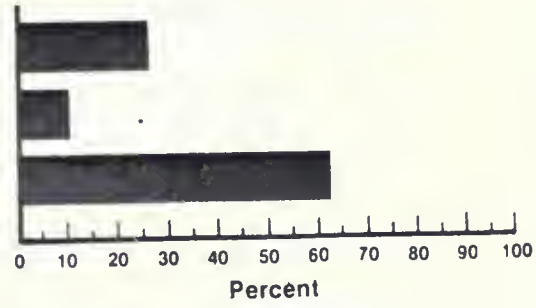
Choice of Answers	Number	Percent
RENT	82	19.1
LEASE	63	14.7
OWN	278	64.8
NO RESPONSE	6	1.4
	429	100.0



Q-44 If you rent or lease your building, are you responsible for paying your energy costs?

Responses

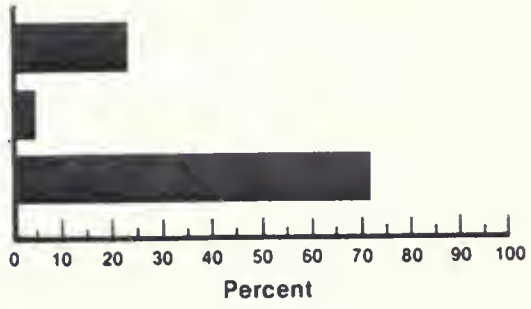
Choice of Answers	Number	Percent
YES	112	26.1
NO	45	10.5
NO RESPONSE	272	63.4
	429	100.0



Q-45 If YES, have you taken any measures to reduce your energy consumption?

Responses

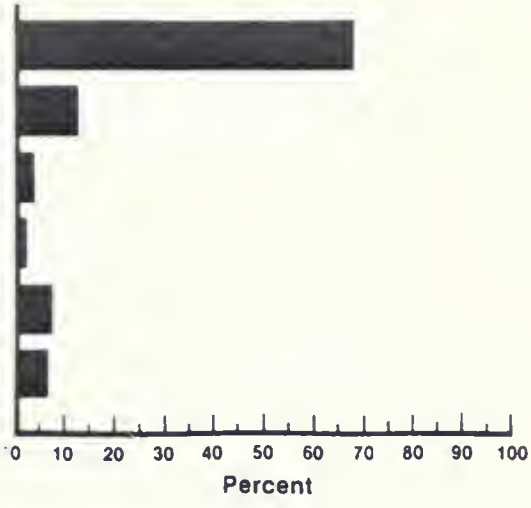
Choice of Answers	Number	Percent
YES	101	23.5
NO	21	4.9
NO RESPONSE	307	71.6
	429	100.0



Q-46 What type of energy provides most of the heat for your building? (First choice)

Responses

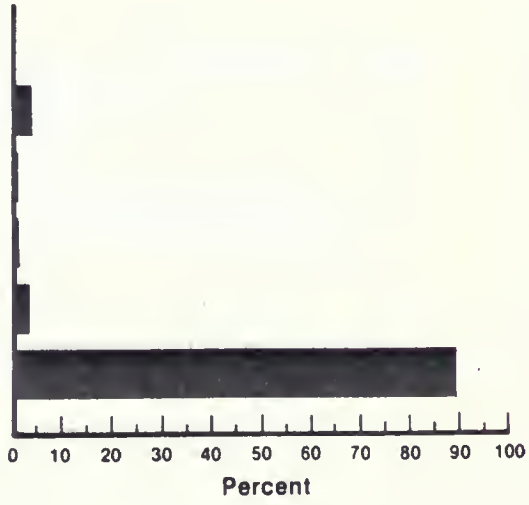
Choice of Answers	Number	Percent
NATURAL GAS	290	67.6
ELECTRICITY	49	11.4
FUEL OIL	19	4.4
PROPANE	8	1.9
OTHER	34	7.9
NO RESPONSE	29	6.7
	429	100.0



Q-47 What type of energy provides most of the heat for your building? (Second choice)

Responses

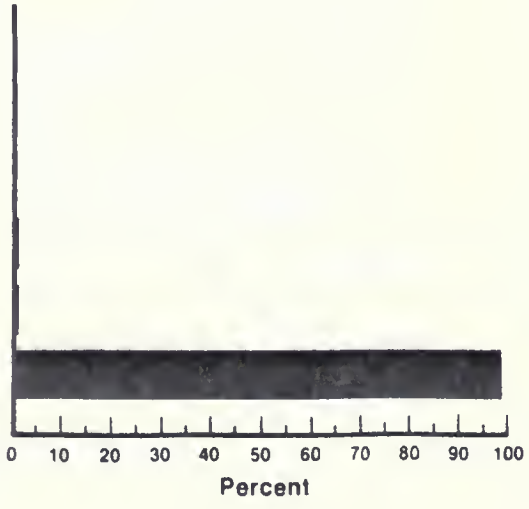
Choice of Answers	Number	Percent
NATURAL GAS	0	0.0
ELECTRICITY	20	4.7
FUEL OIL	2	.5
PROPANE	4	.9
OTHER	18	4.2
NO RESPONSE	385	89.7
	429	100.0



Q-48 What type of energy provides most of the heat for your building? (Third choice)

Responses

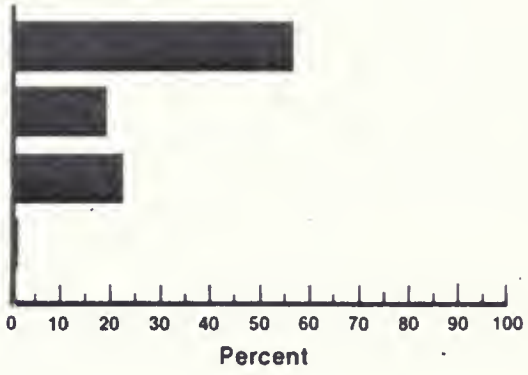
Choice of Answers	Number	Percent
NATURAL GAS	0	0.0
ELECTRICITY	0	0.0
FUEL OIL	0	0.0
PROPANE	2	.5
OTHER	2	.5
NO RESPONSE	425	99.1
	429	100.0



Q-49 How many employees does your firm employ?

Responses

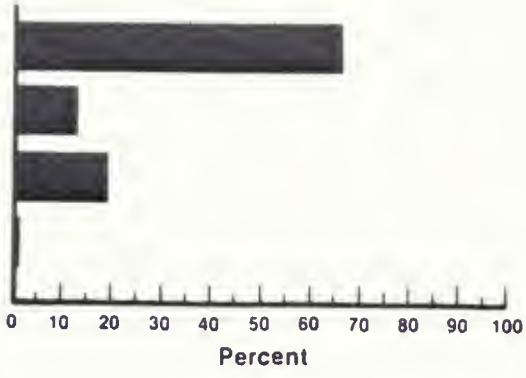
Choice of Answers	Number	Percent
LESS THAN 5	244	56.9
6 TO 9	82	19.1
10 OR MORE	99	23.1
NO RESPONSE	4	.9
	429	100.0



Q-50 Which best describes your current position with your firm?

Responses

Choice of Answers	Number	Percent
OWNER	286	66.7
PARTNER	56	13.1
MANAGER/EMPLOYEE	83	19.3
NO RESPONSE	4	.9
	429	100.0



APPENDIX B cont'd.

BUILDERS

1. SUMMARY OF RESULTS

2. QUESTIONNAIRES

3. SURVEY HISTOGRAMS

SUMMARY OF RESULTS
ENERGY OUTREACH SURVEY
BUILDERS

Builders in Montana appear to be very traditional in their construction techniques in regard to efficient energy design strategies. In particular, the only two techniques that received high ratings for familiarity (75%) are use of standard insulation and multiple-pane windows. All other building and design techniques were mentioned by fewer than 20% of the builders except passive solar heating at 30%. Similarly, the only energy conservation techniques being used by more than 20% of the builders are triple-pane windows (50%), energy-efficient appliances (37%), and passive solar heating (30%). From this data one might conclude that 25% of the buildings presently being constructed in Montana have no conservation features beyond current energy code standards. Of the remaining 75%, very few have any more than standard insulation and double-pane windows.

Along the same lines, 50% of the builders estimated that fewer than 10% of the houses have energy-efficient appliances or triple-pane windows. In addition, over 70% of the builders estimated that fewer than 10% of the buildings have super insulation, solar heating, earth sheltering, high efficiency furnaces, air-to-air heat exchangers, or double envelope construction.

Over 40% of the builders feel that super insulation, triple-pane windows, energy-efficient appliances, and high efficiency furnaces contribute a great deal to the salability of buildings. Thus, it appears that the builders know and understand the rationale in the use

of energy-efficient construction but are not presently utilizing it either because of the construction costs or lack of customer specifications.

Approximately 40% of the builders design the homes they build and, in doing so, 80% of these builders use triple-pane windows as a selling point, 75% advocate energy-efficient appliances, 65% passive solar heating and approximately 50% emphasize super insulation and high efficiency furnaces. Adding these features increases the cost of the construction by approximately 10% for over two-fifths of the builders.

Over 60% of the builders favored the adoption of an energy rating system similar to the EPA automobile mile-per-gallon rating system.

One-half of the builders indicated they had attended at least one workshop dealing with energy conservation during the past year, however, over 90% would be willing to attend such a workshop if available in their immediate area. Fifty percent thought the participants should pay for these workshops, 25% would bill the utility companies, and 12% would expect the government to provide the funding.

Builders presently rely very heavily (92%) on magazines to provide information concerning renewable energy and conservation. Their second most frequently cited source of information is professional associations (81%), with other sources such as energy workshops, newspapers, radio and television being mentioned as sources of information by no more than one-half of the respondents. In spite of this, they perceive workshops as being potentially the most helpful source of information (94%) and magazines are a close second (91%).

Sixty-four percent of the respondents indicated that they constructed residential buildings and more than 91% of the respondents indicated that they were owners of the construction firm.

Only 30% of the builders indicated that they would install energy-efficient building and design features because of their own personal interest. Rather large percentages of the builders (over 85%) indicated that energy-efficient construction techniques would add significantly to the cost of the building. Consequently, if energy-efficient structures are to be built in Montana the primary motivation will have to come from the consumer through customer specifications.

January 14, 1983

MHBA
MONTANA HOME BUILDERS ASSOCIATION

Dear Building Contractor:

The Montana Department of Natural Resources and Conservation (DNRC) is conducting a survey to assist in targeting its information, education, and outreach activities for renewable energy and energy conservation. Your business has been randomly selected to be a part of this survey.

I encourage you to take a few minutes to complete the attached questionaire. This survey is important to building contractors since it will provide the DNRC with information they need to design programs which will assist builders in their efforts to build energy efficienr residences and buildings. The information you provide could very well determine the direction the DNRC will take in its efforts to provide information and education on energy conservation and renewable energy in the state.

Please accept my personal thanks, in advance, for your couperation in this matter.

Sincerely,

James F. Lechner

James F. Lechner
Executive-Director

P.O. BOX 875
BILLINGS, MT. 59103

AC 406-259-1703

CORPORATE OFFICE:
HELENA, MONTANA

Affiliated With

ENERGY OUTREACH SURVEY
BUILDERS

INSTRUCTIONS: Please put an "X" in the appropriate box for each question.

Q-1 How would you rate your knowledge of the following energy conservation building/design techniques, materials, or products?

		VERY FAMILIAR 1	SOMEWHAT FAMILIAR 2	NOT FAMILIAR 3	
1)	INSULATION (R-38 CEILING, R-19 WALLS)	☐	☐	☐	(1)
2)	SUPER INSULATION (R-60 + CEILING, R-40 WALLS)	☐	☐	☐	(2)
3)	ACTIVE SOLAR HEATING	☐	☐	☐	(3)
4)	PASSIVE SOLAR HEATING	☐	☐	☐	(4)
5)	SOLAR GREENHOUSES/SUN SPACES	☐	☐	☐	(5)
6)	EARTH SHELTERING	☐	☐	☐	(6)
7)	DOUBLE OR TRIPLE PANE WINDOWS	☐	☐	☐	(7)
8)	HIGH EFFICIENCY FURNACES (e.g., PULSE COMBUSTION)	☐	☐	☐	(8)
9)	DOUBLE ENVELOPE CONSTRUCTION	☐	☐	☐	(9)
10)	AIR-TO-AIR HEAT EXCHANGERS	☐	☐	☐	(10)
11)	ENERGY EFFICIENT APPLIANCES	☐	☐	☐	(11)

Q-2 Which of the following energy conservation building/design techniques, materials, or products have you used or do you plan to use?

		USED/ NOW USING 1	PLAN TO USE 2	DO NOT PLAN TO USE 3	
1)	SUPER INSULATION (R-60 + CEILING, R-40 WALLS)	☐	☐	☐	(12)
2)	ACTIVE SOLAR HEATING	☐	☐	☐	(13)
3)	PASSIVE SOLAR HEATING	☐	☐	☐	(14)
4)	SOLAR GREENHOUSES/SUN SPACES	☐	☐	☐	(15)
5)	EARTH SHELTERING	☐	☐	☐	(16)
6)	TRIPLE PANE WINDOWS	☐	☐	☐	(17)
7)	HIGH EFFICIENCY FURNACES (e.g., PULSE COMBUSTION)	☐	☐	☐	(18)
8)	DOUBLE ENVELOPE CONSTRUCTION	☐	☐	☐	(19)
9)	AIR-TO-AIR HEAT EXCHANGERS	☐	☐	☐	(20)
10)	ENERGY EFFICIENT APPLIANCES	☐	☐	☐	(21)

Q-3 What is the primary reason you would use these techniques, materials, or products?

1) CUSTOMER SPECIFICATIONS ☐1
2) GENERAL CONSUMER DEMAND ☐2
3) FINANCING REQUIREMENTS ☐3 (22)
4) PERSONAL INTEREST ☐4

Q-4 What would you estimate to be the amount of usage of the following building/design techniques in your geographic area?

		MORE THAN 10% 1	LESS THAN 10% 2	NONE 3	
1)	SUPER INSULATION (R-60 + CEILING, R-40 WALLS)	☐	☐	☐	(23)
2)	ACTIVE SOLAR HEATING	☐	☐	☐	(24)
3)	PASSIVE SOLAR HEATING	☐	☐	☐	(25)
4)	SOLAR GREENHOUSES/SUN SPACES	☐	☐	☐	(26)
5)	EARTH SHELTERING	☐	☐	☐	(27)
6)	TRIPLE PANE WINDOWS	☐	☐	☐	(28)
7)	HIGH EFFICIENCY FURNACES (e.g., PULSE COMBUSTION)	☐	☐	☐	(29)
8)	DOUBLE ENVELOPE CONSTRUCTION	☐	☐	☐	(30)
9)	AIR-TO-AIR HEAT EXCHANGERS	☐	☐	☐	(31)
10)	ENERGY EFFICIENT APPLIANCES	☐	☐	☐	(32)

Q-5 To what extent do you feel the following building/design techniques, materials, or products enhance the salability of buildings or structures?

		GREAT DEAL 1	SOMEWHAT 2	NOT AT ALL 3	
1)	SUPER INSULATION (R-60 + CEILING, R-40 WALLS)	☐	☐	☐	(33)
2)	ACTIVE SOLAR HEATING	☐	☐	☐	(34)
3)	PASSIVE SOLAR HEATING	☐	☐	☐	(35)
4)	SOLAR GREENHOUSES/SUN SPACES	☐	☐	☐	(36)
5)	EARTH SHELTERING	☐	☐	☐	(37)
6)	TRIPLE PANE WINDOWS	☐	☐	☐	(38)
7)	HIGH EFFICIENCY FURNACES (e.g., PULSE COMBUSTION	☐	☐	☐	(39)
8)	DOUBLE ENVELOPE CONSTRUCTION	☐	☐	☐	(40)
9)	AIR-TO-AIR HEAT EXCHANGERS	☐	☐	☐	(41)
10)	ENERGY EFFICIENT APPLIANCES	☐	☐	☐	(42)

Q-6 Are you involved in marketing or selling the buildings or homes you build or design?

1) YES ☐1

2) NO ☐2 (43)

IF NO, SKIP TO Q-8

Q-7 If YES, which of the following features do you use as selling points?

		YES 1	NO 2	
1)	INSULATION (R-60 + CEILING, R-40 WALLS)	☐	☐	(44)
2)	ACTIVE SOLAR HEATING	☐	☐	(45)
3)	PASSIVE SOLAR HEATING	☐	☐	(46)
4)	SOLAR GREENHOUSES/SUN SPACES	☐	☐	(47)
5)	EARTH SHELTERING	☐	☐	(48)
6)	TRIPLE PANE WINDOWS	☐	☐	(49)
7)	HIGH EFFICIENCY FURNACES (e.g., PULSE COMBUSTION)	☐	☐	(50)
8)	DOUBLE ENVELOPE CONSTRUCTION	☐	☐	(51)
9)	AIR-TO-AIR HEAT EXCHANGERS	☐	☐	(52)
10)	ENERGY EFFICIENT APPLIANCES	☐	☐	(53)

Q-8 How much would you estimate the following building/design techniques, materials, or products add to the basic cost of a new structure?

		0-9% 1	10-20% 2	NONE 3	
1)	INSULATION (R-38 CEILING, R-19 WALLS)	☐	☐	☐	(54)
2)	SUPER INSULATION (R-60 + CEILING, R-40 WALLS)	☐	☐	☐	(55)
3)	ACTIVE SOLAR HEATING	☐	☐	☐	(56)
4)	PASSIVE SOLAR HEATING	☐	☐	☐	(57)
5)	SOLAR GREENHOUSES/SUN SPACES	☐	☐	☐	(58)
6)	EARTH SHELTERING	☐	☐	☐	(59)

Q-8 (continued)

	0-9% 1	10-20% 2	NONE 3	
7) DOUBLE OR TRIPLE PANE WINDOWS	☐	☐	☐	(60)
8) HIGH EFFICIENCY FURNACES (e.g., PULSE COMBUSTION)	☐	☐	☐	(61)
9) DOUBLE ENVELOPE CONSTRUCTION	☐	☐	☐	(62)
10) AIR-TO-AIR HEAT EXCHANGERS	☐	☐	☐	(63)
11) ENERGY EFFICIENT APPLIANCES	☐	☐	☐	(64)

Q-9 The State of Montana is considering the use of a home energy rating system similar to the EPA car mileage system. Would you support the adoption of such a rating system for new and existing homes?

1) YES ☐1
2) NO ☐2 (65)

Q-10 How many energy workshops or professional meetings dealing with energy conservation or renewable energy have you attended in the past year?

1) MORE THAN ONE ☐1
2) ONE ☐2 (66)
3) NONE ☐3

Q-11 Would you be willing to attend workshops related to energy conservation or renewable energy if they were available in your area?

1) YES ☐1
2) NO ☐2 (67)

Q-12 Who do you feel should pay for these workshops?

1) STATE GOVERNMENT ☐1
2) FEDERAL GOVERNMENT ☐2
3) UTILITY COMPANIES ☐3 (68)
4) PARTICIPANTS ☐4

Q-13 Have you found information on energy conservation or renewable energy from any of the following sources?

		YES 1	NO 2	
1)	PROFESSIONAL ASSOCIATIONS/ PUBLICATIONS	☐	☐	(69)
2)	TV	☐	☐	(70)
3)	RADIO	☐	☐	(71)
4)	NEWSPAPERS	☐	☐	(72)
5)	MAGAZINES	☐	☐	(73)
6)	ENERGY WORKSHOPS	☐	☐	(74)

Q-14 Which of the following sources do you think could best be used to deliver information on energy conservation and renewable energy?

		VERY HELPFUL 1	SOMEWHAT HELPFUL 2	NOT HELPFUL 3	
1)	PROFESSIONAL ASSOCIATIONS/ PUBLICATIONS	☐	☐	☐	(75)
2)	TV	☐	☐	☐	(76)
3)	RADIO	☐	☐	☐	(77)
4)	NEWSPAPERS	☐	☐	☐	(78)
5)	MAGAZINES	☐	☐	☐	(79)
6)	ENERGY WORKSHOPS	☐	☐	☐	(80)

Q-15 What type of buildings do you primarily build or design?

1)	RESIDENTIAL	☐1	(81)
2)	COMMERCIAL	☐2	

Q-16 How many employees does your firm employ?

1)	LESS THAN 5	☐1	
2)	6 TO 9	☐2	(82)
3)	10 OR MORE	☐3	

Q-17 Which best describes your current position with your firm?

1)	OWNER	☐1	
2)	PARTNER	☐2	(83)
3)	MANAGER/EMPLOYEE	☐3	

Is there anything else you would like to tell us that would assist us in delivering energy conservation and renewable energy information? If so, please use this space for that purpose.

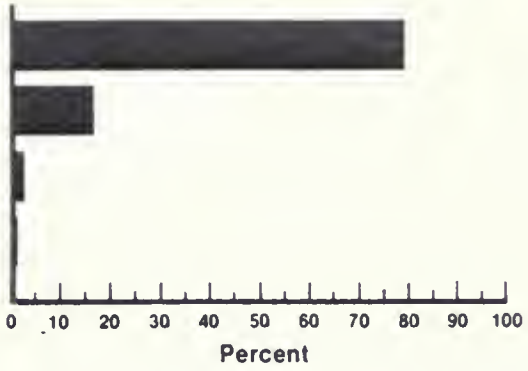
Your contribution to this effort is greatly appreciated. If you would like a summary of results, please print your name and address on the back of the return envelope (NOT on this questionnaire), and we will mail you a copy.

SURVEY HISTOGRAMS
ENERGY OUTREACH SURVEY
BUILDERS

Q-1 How would you rate your knowledge of the following energy conservation building/design technique -- insulation (R-38 ceiling, R-19 walls)?

Responses

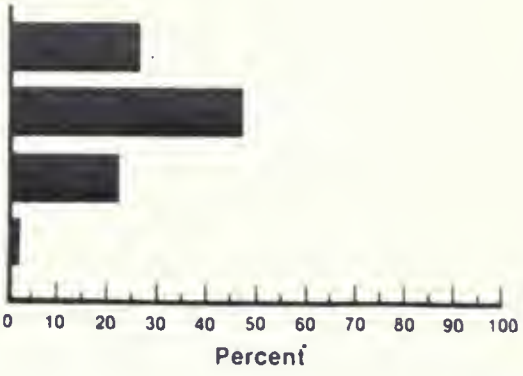
Choice of Answers	Number	Percent
VERY FAMILIAR	204	79.7
SOMEWHAT FAMILIAR	45	17.6
NOT FAMILIAR	6	2.3
NO RESPONSE	1	.4
	256	100.0



Q-2 How would you rate your knowledge of the following energy conservation building/design technique -- super insulation (R-60+ ceiling, R-40 walls)?

Responses

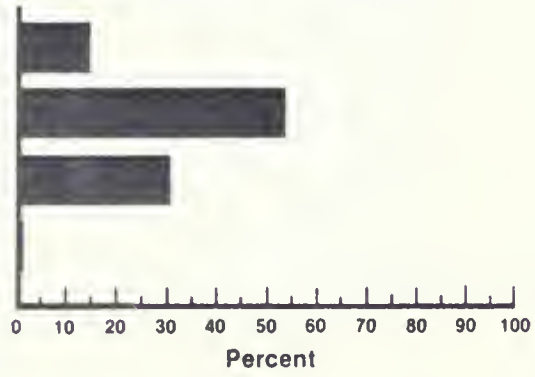
Choice of Answers	Number	Percent
VERY FAMILIAR	67	26.2
SOMEWHAT FAMILIAR	123	48.0
NOT FAMILIAR	60	23.4
NO RESPONSE	6	2.3
	256	100.0



Q-3 How would you rate your knowledge of the following energy conservation building/design technique -- active solar heating?

Responses

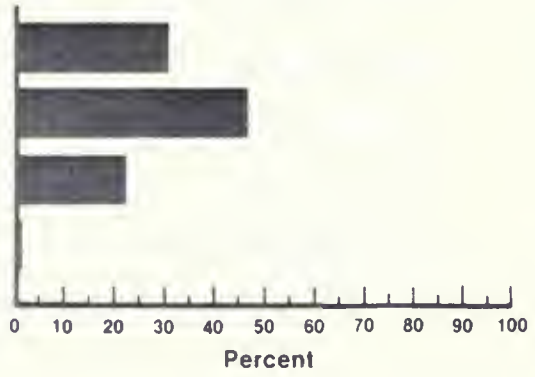
Choice of Answers	Number	Percent
VERY FAMILIAR	38	14.8
SOMEWHAT FAMILIAR	138	53.9
NOT FAMILIAR	78	30.5
NO RESPONSE	2	.8
	256	100.0



Q-4 How would you rate your knowledge of the following energy conservation building/design technique -- passive solar heating?

Responses

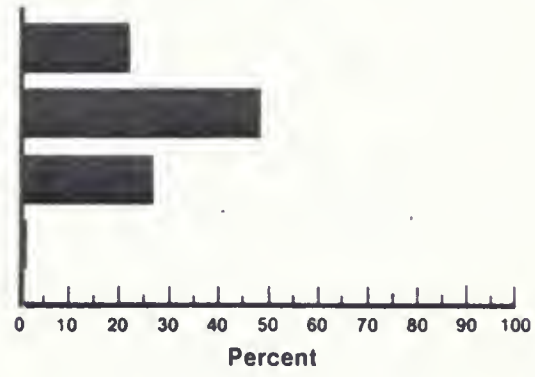
Choice of Answers	Number	Percent
VERY FAMILIAR	77	30.1
SOMEWHAT FAMILIAR	121	47.3
NOT FAMILIAR	56	21.9
NO RESPONSE	2	.8
	256	100.0



Q-5 How would you rate your knowledge of the following energy conservation building/design technique -- solar greenhouses/sun spaces?

Responses

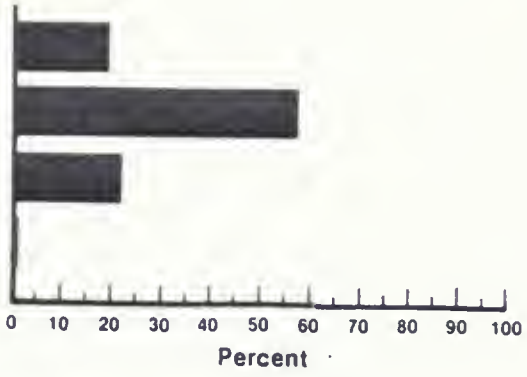
Choice of Answers	Number	Percent
VERY FAMILIAR	58	22.7
SOMEWHAT FAMILIAR	125	48.8
NOT FAMILIAR	71	27.7
NO RESPONSE	2	.8
	256	100.0



Q-6 How would you rate your knowledge of the following energy conservation building/design technique -- earth sheltering?

Responses

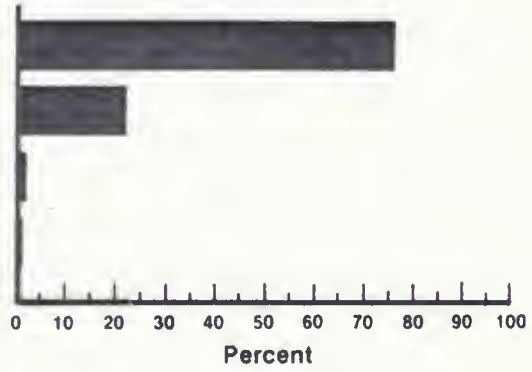
Choice of Answers	Number	Percent
VERY FAMILIAR	49	19.1
SOMEWHAT FAMILIAR	150	58.6
NOT FAMILIAR	56	21.9
NO RESPONSE	1	.4
	256	100.0



Q-7 How would you rate your knowledge of the following energy conservation building/design technique -- double or triple pane windows?

Responses

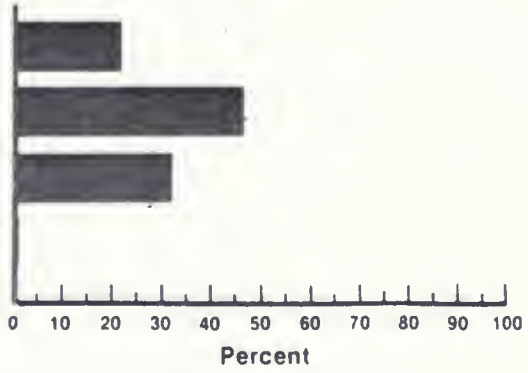
Choice of Answers	Number	Percent
VERY FAMILIAR	194	75.8
SOMEWHAT FAMILIAR	56	21.9
NOT FAMILIAR	4	1.6
NO RESPONSE	2	.8
	256	100.0



Q-8 How would you rate your knowledge of the following energy conservation building/design technique -- high efficiency furnaces (e.g., pulse combustion)?

Responses

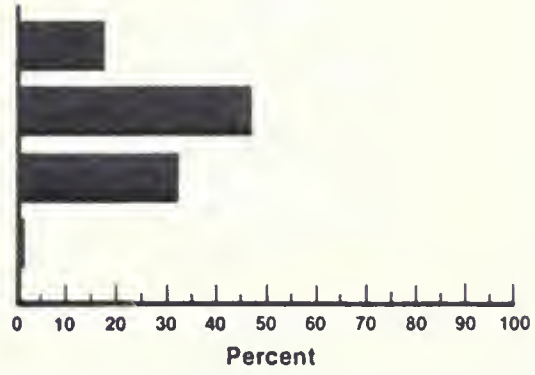
Choice of Answers	Number	Percent
VERY FAMILIAR	54	21.1
SOMEWHAT FAMILIAR	118	46.1
NOT FAMILIAR	83	32.4
NO RESPONSE	1	.4
	256	100.0



Q-9 How would you rate your knowledge of the following energy conservation building/design technique -- double envelope construction?

Responses

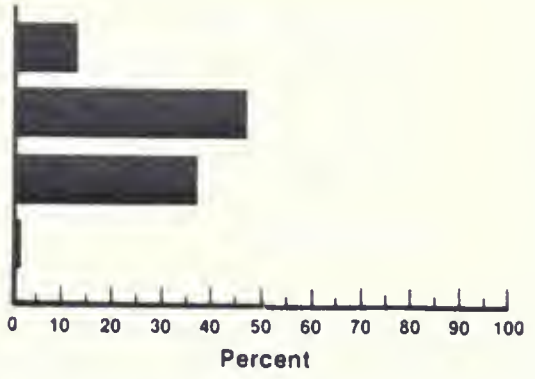
Choice of Answers	Number	Percent
VERY FAMILIAR	48	18.8
SOMEWHAT FAMILIAR	123	48.0
NOT FAMILIAR	83	32.4
NO RESPONSE	2	.8
	256	100.0



Q-10 How would you rate your knowledge of the following energy conservation building/design technique -- air-to-air heat exchangers?

Responses

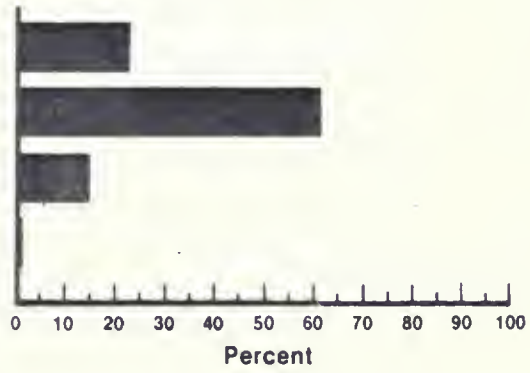
Choice of Answers	Number	Percent
VERY FAMILIAR	35	13.7
SOMEWHAT FAMILIAR	121	47.3
NOT FAMILIAR	97	37.9
NO RESPONSE	3	1.2
	256	100.0



Q-11 How would you rate your knowledge of the following energy conservation building/design technique -- energy efficient appliances?

Responses

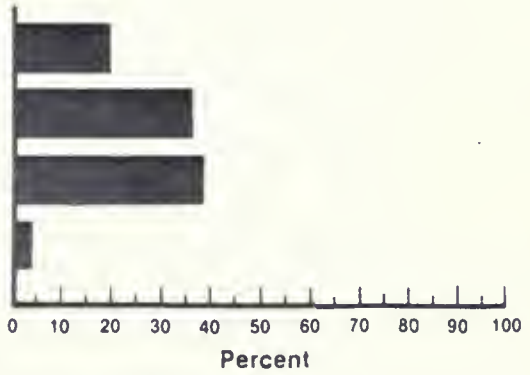
Choice of Answers	Number	Percent
VERY FAMILIAR	58	22.7
SOMEWHAT FAMILIAR	157	61.3
NOT FAMILIAR	39	15.2
NO RESPONSE	2	.8
	256	100.0



Q-12 Have you used or do you plan to use the following energy conservation building/design technique -- super insulation (R-60+ ceiling, R-40 walls)?

Responses

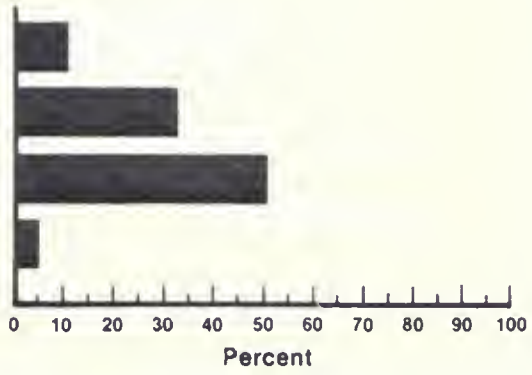
Choice of Answers	Number	Percent
USED/NOW USING	51	19.9
PLAN TO USE	93	36.3
DO NOT PLAN TO USE	100	39.1
NO RESPONSE	12	4.7
	256	100.0



Q-13 Have you used or do you plan to use the following energy conservation building/design technique -- active solar heating?

Responses

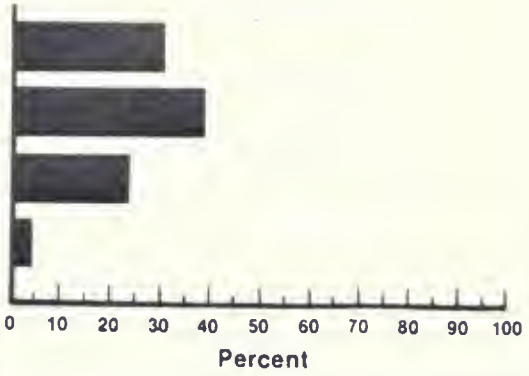
Choice of Answers	Number	Percent
USED/NOW USING	29	11.3
PLAN TO USE	85	33.2
DO NOT PLAN TO USE	129	50.4
NO RESPONSE	13	5.1
	256	100.0



Q-14 Have you used or do you plan to use the following energy conservation building/design technique -- passive solar heating?

Responses

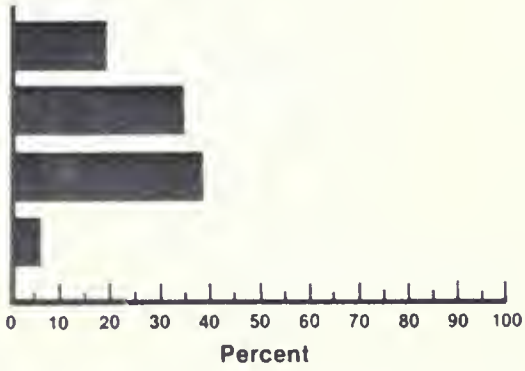
Choice of Answers	Number	Percent
USED/NOW USING	79	30.9
PLAN TO USE	101	39.5
DO NOT PLAN TO USE	63	24.6
NO RESPONSE	13	5.1
	256	100.0



Q-15 Have you used or do you plan to use the following energy conservation building/design technique -- solar greenhouses/ sun spaces?

Responses

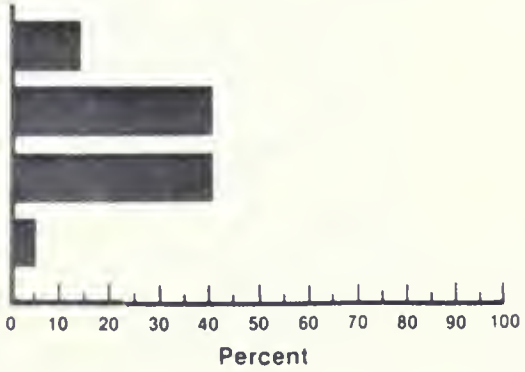
Choice of Answers	Number	Percent
USED/NOW USING	50	19.5
PLAN TO USE	90	35.2
DO NOT PLAN TO USE	100	39.1
NO RESPONSE	16	6.3
	256	100.0



Q-16 Have you used or do you plan to use the following energy conservation building/design technique -- earth sheltering?

Responses

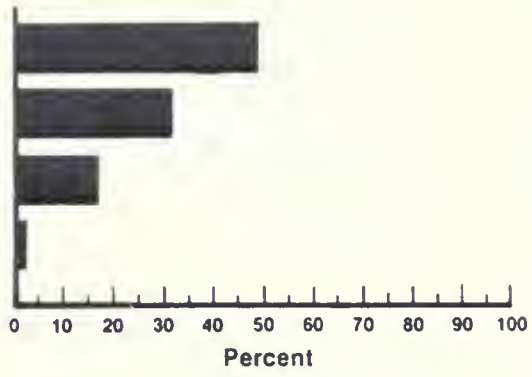
Choice of Answers	Number	Percent
USED/NOW USING	36	14.1
PLAN TO USE	104	40.6
DO NOT PLAN TO USE	103	40.2
NO RESPONSE	13	5.1
	256	100.0



Q-17 Have you used or do you plan to use the following energy conservation building/design technique -- triple pane windows?

Responses

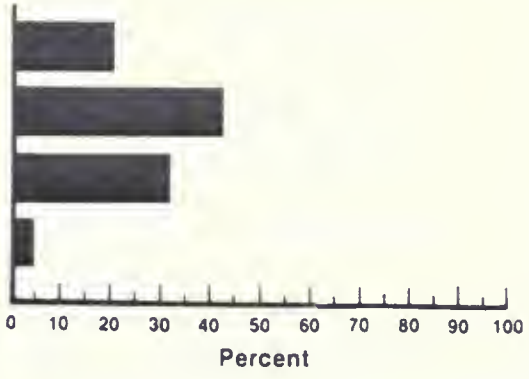
Choice of Answers	Number	Percent
USED/NOW USING	126	49.2
PLAN TO USE	81	31.6
DO NOT PLAN TO USE	43	16.8
NO RESPONSE	6	2.3
	256	100.0



Q-18 Have you used or do you plan to use the following energy conservation building/design technique -- high efficiency furnaces (e.g., pulse combustion)?

Responses

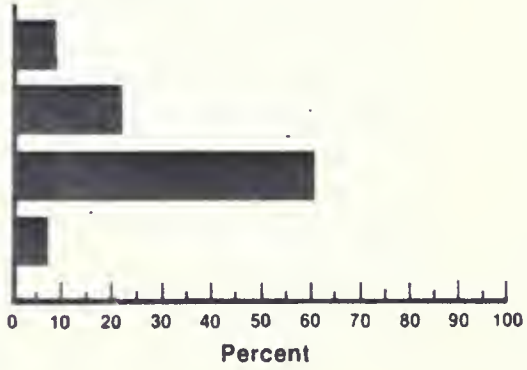
Choice of Answers	Number	Percent
USED/NOW USING	52	20.3
PLAN TO USE	111	43.4
DO NOT PLAN TO USE	80	31.3
NO RESPONSE	13	5.1
	256	100.0



Q-19 Have you used or do you plan to use the following energy conservation building/design technique -- double envelope construction?

Responses

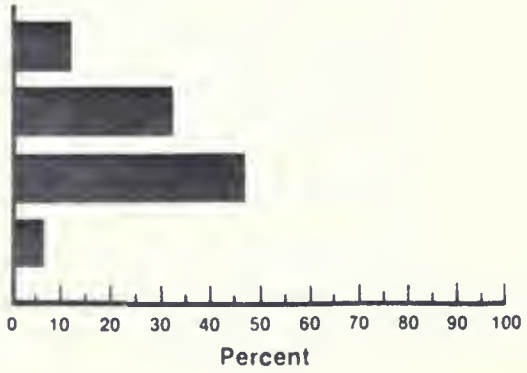
Choice of Answers	Number	Percent
USED/NOW USING	24	9.4
PLAN TO USE	58	22.7
DO NOT PLAN TO USE	154	60.2
NO RESPONSE	20	7.8
	256	100.0



Q-20 Have you used or do you plan to use the following energy conservation building/design technique -- air-to-air heat exchangers?

Responses

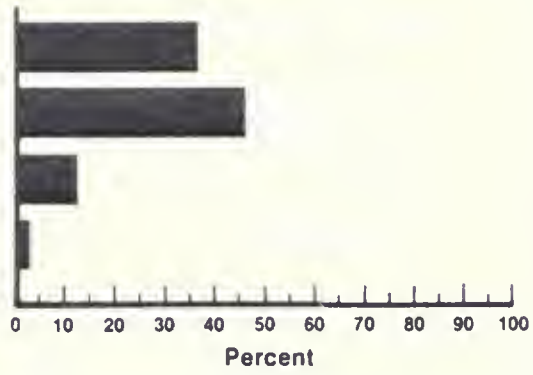
Choice of Answers	Number	Percent
USED/NOW USING	32	12.5
PLAN TO USE	84	32.8
DO NOT PLAN TO USE	121	47.3
NO RESPONSE	19	7.4
	256	100.0



Q-21 Have you used or do you plan to use the following energy conservation building/design technique -- energy efficient appliances?

Responses

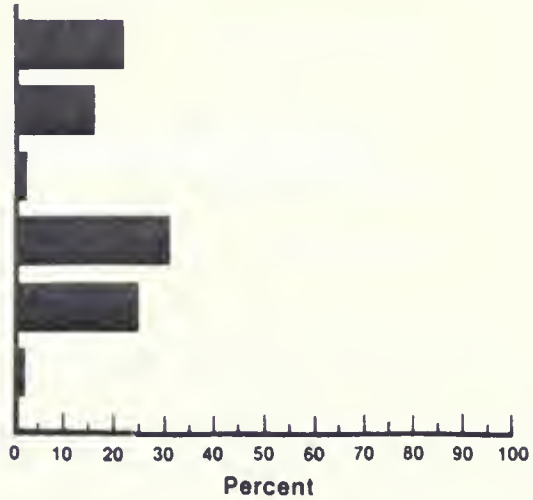
Choice of Answers	Number	Percent
USED/NOW USING	95	37.1
PLAN TO USE	118	46.1
DO NOT PLAN TO USE	34	13.3
NO RESPONSE	9	3.5
	256	100.0



Q-22 What is the primary reason you would use these techniques, materials, or products? (Note: see Q-12 through Q-21)

Responses

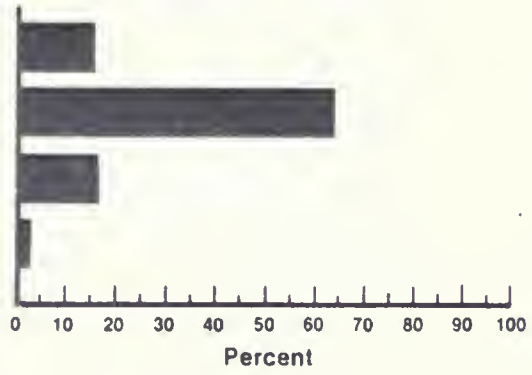
Choice of Answers	Number	Percent
CUSTOMER SPECIFICATIONS	60	23.4
GENERAL CONSUMER DEMAND	42	16.4
FINANCING REQUIREMENTS	5	2.0
PERSONAL INTEREST	80	31.3
MULTIPLE RESPONSE	64	25.0
NO RESPONSE	5	2.0
	256	100.0



Q-23 What would you estimate to be the amount of usage of the following building/design technique in your geographic area -- super insulation (R-60+ ceiling, R-40 walls)?

Responses

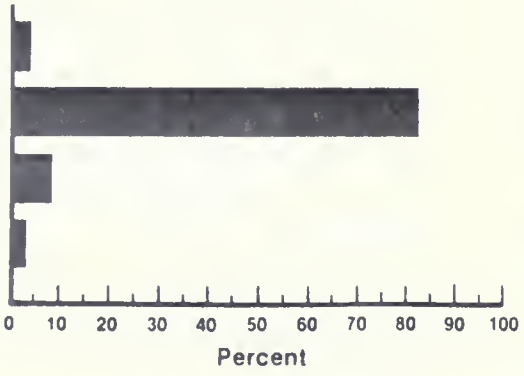
Choice of Answers	Number	Percent
MORE THAN 10%	40	15.6
LESS THAN 10%	165	64.5
NONE	42	16.4
NO RESPONSE	9	3.5
	256	100.0



Q-24 What would you estimate to be the amount of usage of the following building/design technique in your geographic area -- active solar heating?

Responses

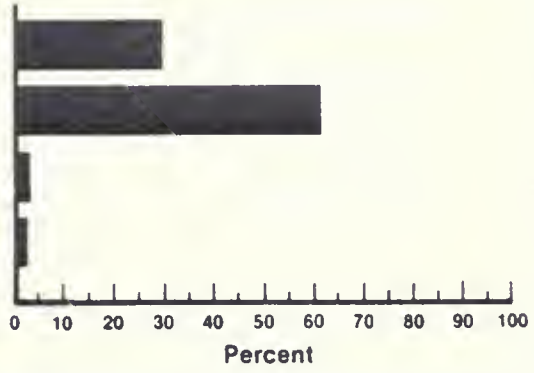
Choice of Answers	Number	Percent
MORE THAN 10%	11	4.3
LESS THAN 10%	213	83.2
NONE	23	9.0
NO RESPONSE	9	3.5
	256	100.0



Q-25 What would you estimate to be the amount of usage of the following building/design technique in your geographic area -- passive solar heating?

Responses

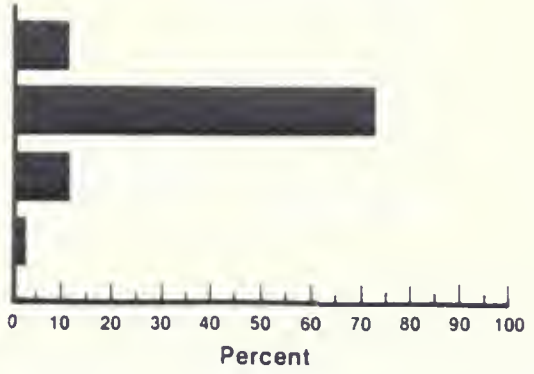
Choice of Answers	Number	Percent
MORE THAN 10%	77	30.1
LESS THAN 10%	158	61.7
NONE	11	4.3
NO RESPONSE	10	3.9
	256	100.0



Q-26 What would you estimate to be the amount of usage of the following building/design technique in your geographic area -- solar greenhouses/sun spaces?

Responses

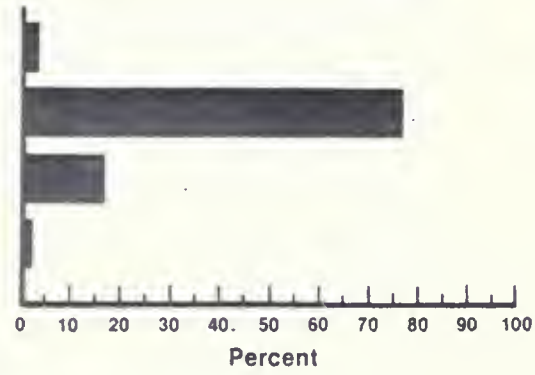
Choice of Answers	Number	Percent
MORE THAN 10%	27	10.5
LESS THAN 10%	189	73.8
NONE	31	12.1
NO RESPONSE	9	3.5
	256	100.0



Q-27 What would you estimate to be the amount of usage of the following building/design technique in your geographic area -- earth sheltering?

Responses

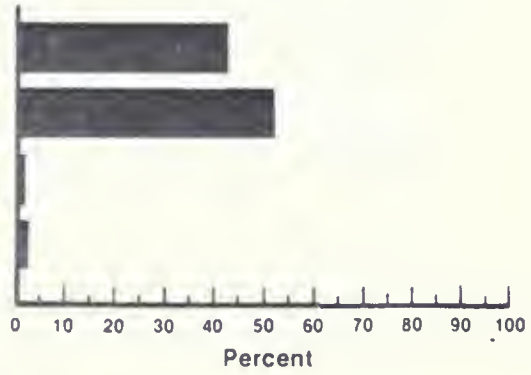
Choice of Answers	Number	Percent
MORE THAN 10%	9	3.5
LESS THAN 10%	197	77.0
NONE	44	17.2
NO RESPONSE	6	2.3
	256	100.0



Q-28 What would you estimate to be the amount of usage of the following building/design technique in your geographic area -- triple pane windows?

Responses

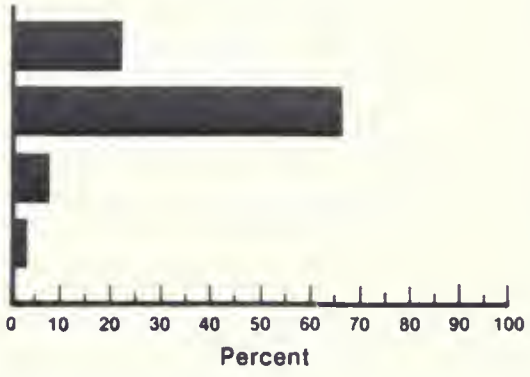
Choice of Answers	Number	Percent
MORE THAN 10%	112	43.8
LESS THAN 10%	132	51.6
NONE	5	2.0
NO RESPONSE	7	2.7
	256	100.0



Q-29 What would you estimate to be the amount of usage of the following building/design technique in your geographic area -- high efficiency furnaces (e.g., pulse combustion)?

Responses

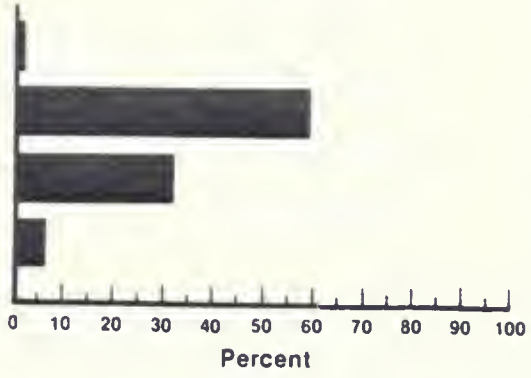
Choice of Answers	Number	Percent
MORE THAN 10%	55	21.5
LESS THAN 10%	169	66.0
NONE	21	8.2
NO RESPONSE	11	4.3
	256	100.0



Q-30 What would you estimate to be the amount of usage of the following building/design technique in your geographic area -- double envelope construction?

Responses

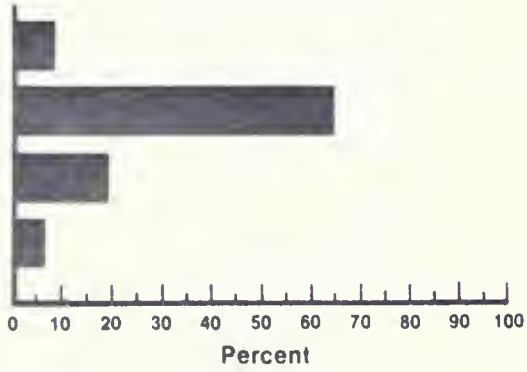
Choice of Answers	Number	Percent
MORE THAN 10%	6	2.3
LESS THAN 10%	152	59.4
NONE	82	32.0
NO RESPONSE	16	6.3
	256	100.0



Q-31 What would you estimate to be the amount of usage of the following building/design technique in your geographic area -- air-to-air heat exchangers?

Responses

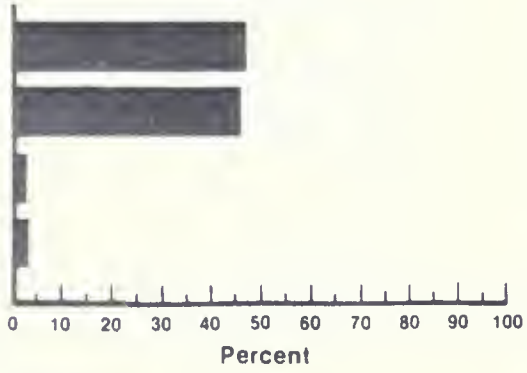
Choice of Answers	Number	Percent
MORE THAN 10%	22	8.6
LESS THAN 10%	167	65.2
NONE	50	19.5
NO RESPONSE	17	6.6
	256	100.0



Q-32 What would you estimate to be the amount of usage of the following building/design technique in your geographic area -- energy efficient appliances?

Responses

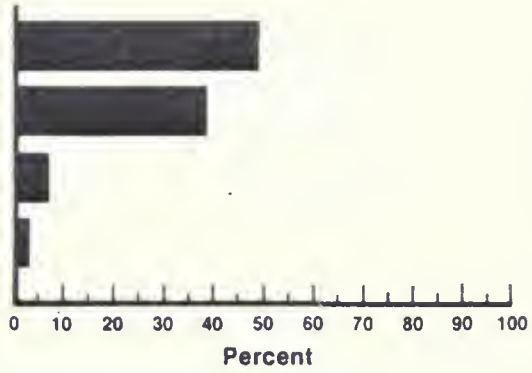
Choice of Answers	Number	Percent
MORE THAN 10%	120	46.9
LESS THAN 10%	117	45.7
NONE	9	3.5
NO RESPONSE	10	3.9
	256	100.0



Q-33 To what extent do you feel the following building/design technique enhances the salability of buildings or structures -- super insulation (R-60+ ceiling, R-40 walls)?

Responses

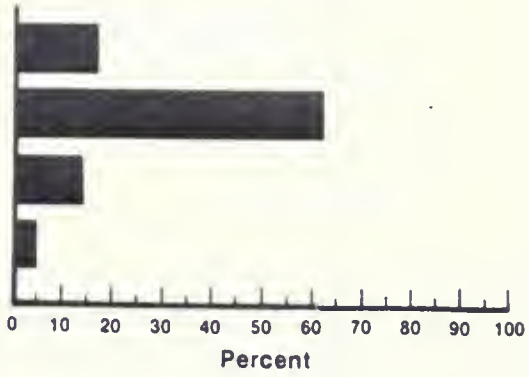
Choice of Answers	Number	Percent
GREAT DEAL	126	49.2
SOMEWHAT	100	39.1
NOT AT ALL	20	7.8
NO RESPONSE	10	3.9
	256	100.0



Q-34 To what extent do you feel the following building/design technique enhances the salability of buildings or structures -- active solar heating?

Responses

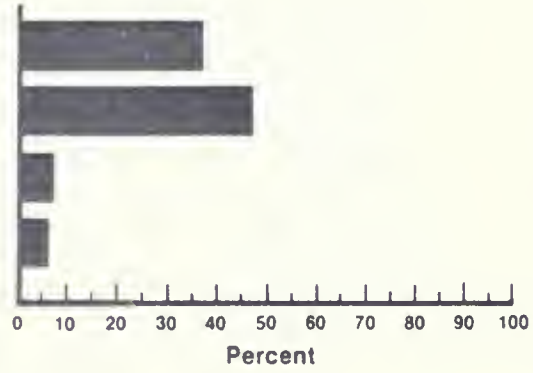
Choice of Answers	Number	Percent
GREAT DEAL	44	17.2
SOMEWHAT	161	62.9
NOT AT ALL	38	14.8
NO RESPONSE	13	5.1
	256	100.0



Q-35 To what extent do you feel the following building/design technique enhances the salability of buildings or structures -- passive solar heating?

Responses

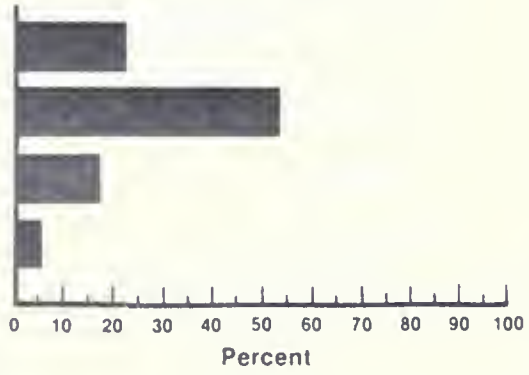
Choice of Answers	Number	Percent
GREAT DEAL	95	37.1
SOMEWHAT	123	48.0
NOT AT ALL	21	8.2
NO RESPONSE	17	6.6
	256	100.0



Q-36 To what extent do you feel the following building/design technique enhances the salability of buildings or structures -- solar greenhouses/sun spaces?

Responses

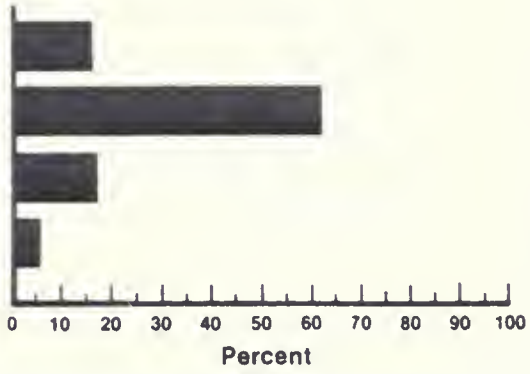
Choice of Answers	Number	Percent
GREAT DEAL	59	23.0
SOMEWHAT	138	53.9
NOT AT ALL	46	18.0
NO RESPONSE	13	5.1
	256	100.0



Q-37 To what extent do you feel the following building/design technique enhances the salability of buildings or structures -- earth sheltering?

Responses

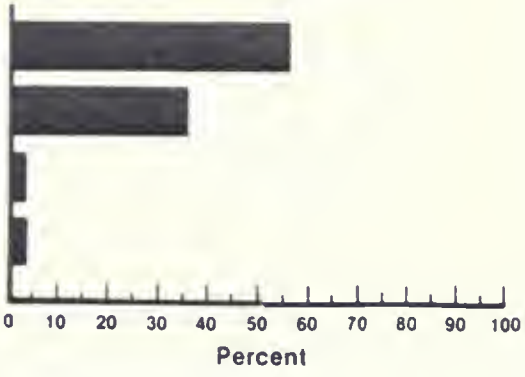
Choice of Answers	Number	Percent
GREAT DEAL	41	16.0
SOMEWHAT	158	61.7
NOT AT ALL	43	16.8
NO RESPONSE	14	5.5
	256	100.0



Q-38 To what extent do you feel the following building/design technique enhances the salability of buildings or structures -- triple pane windows?

Responses

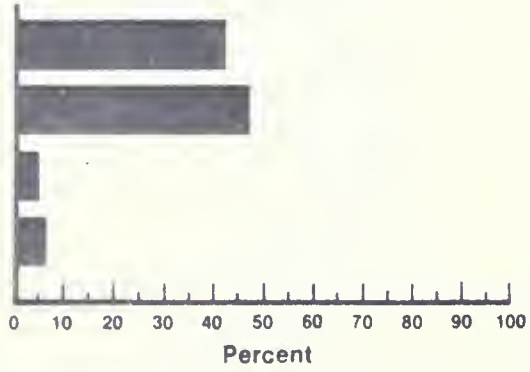
Choice of Answers	Number	Percent
GREAT DEAL	144	56.3
SOMEWHAT	91	35.5
NOT AT ALL	10	3.9
NO RESPONSE	11	4.3
	256	100.0



Q-39 To what extent do you feel the following building/design technique enhances the salability of buildings or structures -- high efficiency furnaces (e.g., pulse combustion)?

Responses

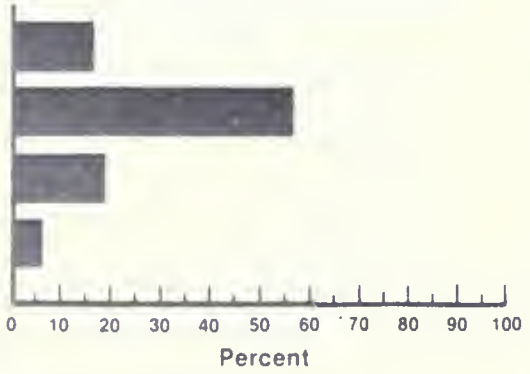
Choice of Answers	Number	Percent
GREAT DEAL	109	42.6
SOMEWHAT	117	45.7
NOT AT ALL	13	5.1
NO RESPONSE	17	6.6
	256	100.0



Q-40 To what extent do you feel the following building/design technique enhances the salability of buildings or structures -- double envelope construction?

Responses

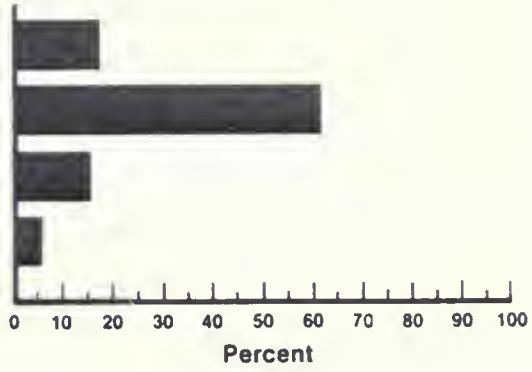
Choice of Answers	Number	Percent
GREAT DEAL	45	17.6
SOMEWHAT	146	57.0
NOT AT ALL	49	19.1
NO RESPONSE	16	6.3
	256	100.0



Q-41 To what extent do you feel the following building/design technique enhances the salability of buildings or structures -- air-to-air heat exchangers?

Responses

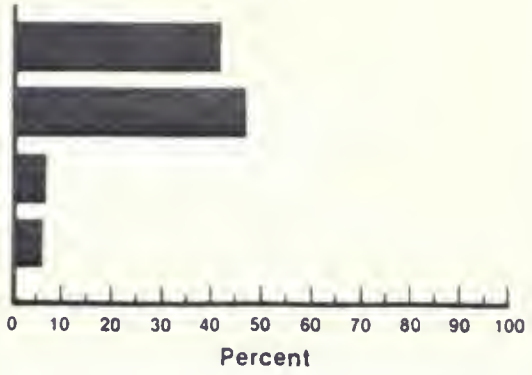
Choice of Answers	Number	Percent
GREAT DEAL	47	18.4
SOMEWHAT	155	60.5
NOT AT ALL	40	15.6
NO RESPONSE	14	5.5
	256	100.0



Q-42 To what extent do you feel the following building/design technique enhances the salability of buildings or structures -- energy efficient appliances?

Responses

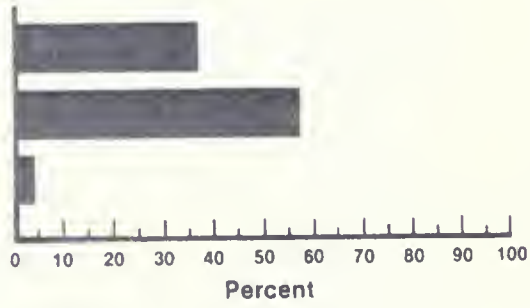
Choice of Answers	Number	Percent
GREAT DEAL	105	41.0
SOMEWHAT	122	47.7
NOT AT ALL	15	5.9
NO RESPONSE	14	5.5
	256	100.0



Q-43 Are you involved in marketing or selling the buildings or homes you build or design?

Responses

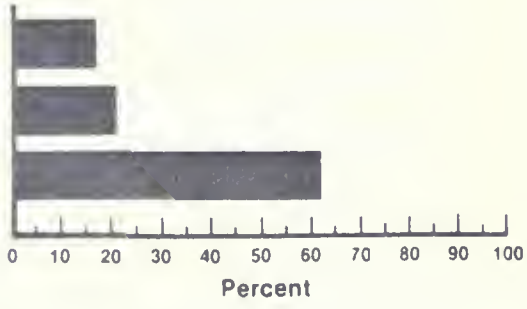
Choice of Answers	Number	Percent
YES	96	37.5
NO	148	57.8
NO RESPONSE	12	4.7
	256	100.0



Q-44 If YES, do you use super insulation (R-60+ ceiling, R-40 walls) as a selling point?

Responses

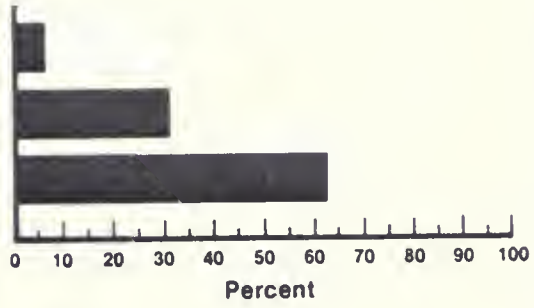
Choice of Answers	Number	Percent
YES	45	17.6
NO	52	20.3
NO RESPONSE	159	62.1
	256	100.0



Q-45 If YES, do you use active solar heating as a selling point?

Responses

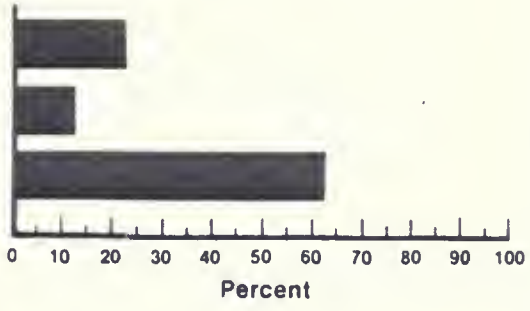
Choice of Answers	Number	Percent
YES	17	6.6
NO	78	30.5
NO RESPONSE	161	62.9
	256	100.0



Q-46 If YES, do you use passive solar heating as a selling point?

Responses

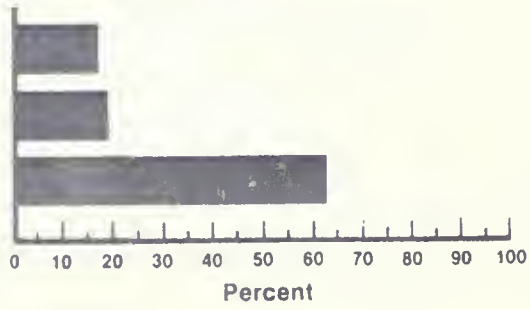
Choice of Answers	Number	Percent
YES	61	23.8
NO	34	13.3
NO RESPONSE	161	62.9
	256	100.0



Q-47 If YES, do you use solar greenhouses/sun spaces as a selling point?

Responses

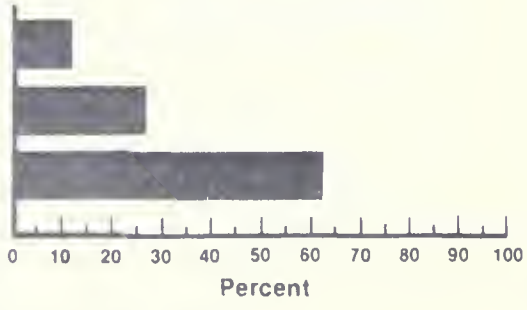
Choice of Answers	Number	Percent
YES	43	16.8
NO	51	19.9
NO RESPONSE	162	63.3
	256	100.0



Q-48 If YES, do you use earth sheltering as a selling point?

Responses

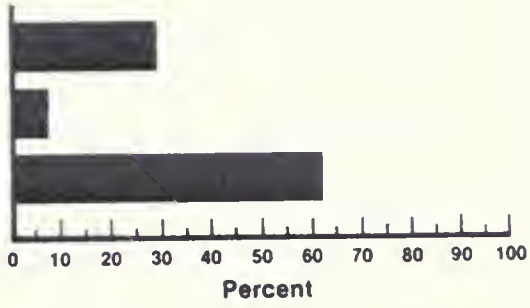
Choice of Answers	Number	Percent
YES	28	10.9
NO	67	26.2
NO RESPONSE	161	62.9
	256	100.0



Q-49 If YES, do you use triple pane windows as a selling point?

Responses

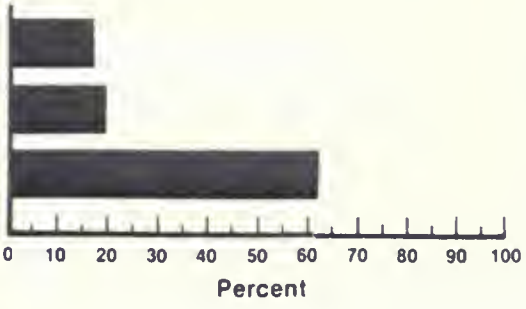
Choice of Answers	Number	Percent
YES	76	29.7
NO	20	7.8
NO RESPONSE	160	62.5
	256	100.0



Q-50 If YES, do you use high efficiency furnaces (e.g., pulse combustion) as a selling point?

Responses

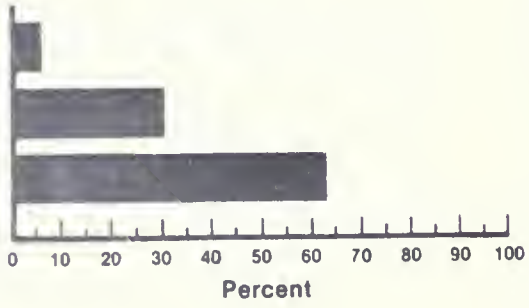
Choice of Answers	Number	Percent
YES	46	18.0
NO	51	19.9
NO RESPONSE	159	62.1
	256	100.0



Q-51 If YES, do you use double envelope construction as a selling point?

Responses

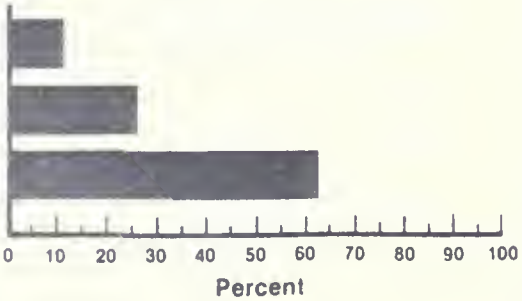
Choice of Answers	Number	Percent
YES	16	6.3
NO	77	30.1
NO RESPONSE	163	63.7
	256	100.0



Q-52 If YES, do you use air-to-air heat exchangers as a selling point?

Responses

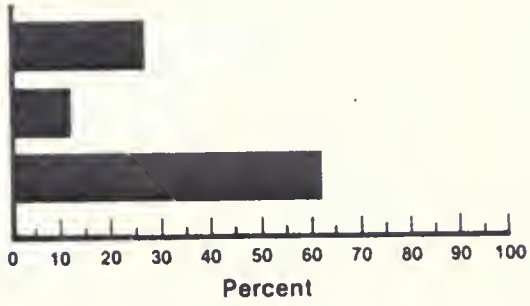
Choice of Answers	Number	Percent
YES	29	11.3
NO	65	25.4
NO RESPONSE	162	63.3
	256	100.0



Q-53 If YES, do you use energy efficient appliances as a selling point?

Responses

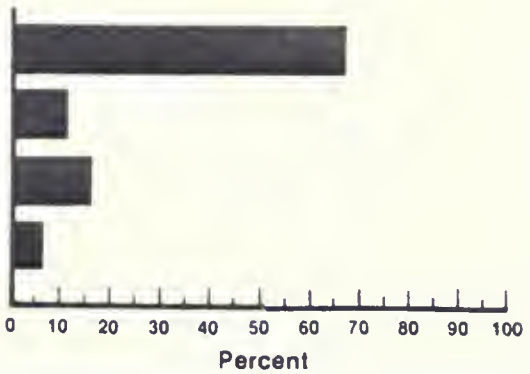
Choice of Answers	Number	Percent
YES	70	27.3
NO	28	10.9
NO RESPONSE	158	61.7
	256	100.0



Q-54 How much would you estimate the following building/design technique adds to the basic cost of a new structure -- insulation (R-38 ceiling, R-19 walls)?

Responses

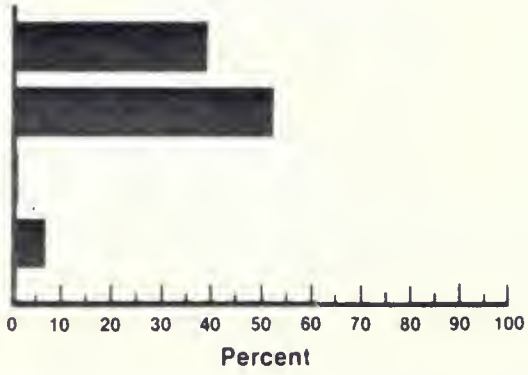
Choice of Answers	Number	Percent
0 - 9%	171	66.8
10 - 20%	29	11.3
NONE	40	15.6
NO RESPONSE	16	6.3
	256	100.0



Q-55 How much would you estimate the following building/design technique adds to the basic cost of a new structure -- super insulation (R-60+ ceiling, R-40 walls)?

Responses

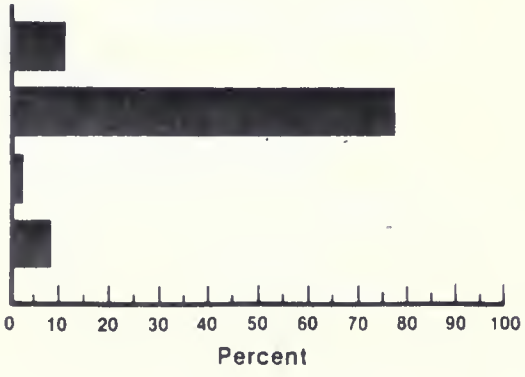
Choice of Answers	Number	Percent
0 - 9%	101	39.5
10 - 20%	135	52.7
NONE	1	.4
NO RESPONSE	19	7.4
	256	100.0



Q-56 How much would you estimate the following building/design technique adds to the basic cost of a new structure -- active solar heating?

Responses

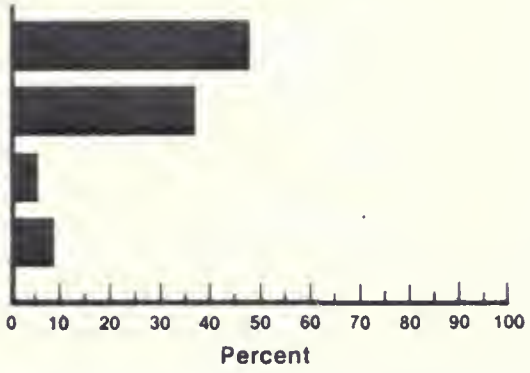
Choice of Answers	Number	Percent
0 - 9%	26	10.2
10 - 20%	201	78.5
NONE	6	2.3
NO RESPONSE	23	9.0
	256	100.0



Q-57 How much would you estimate the following building/design technique adds to the basic cost of a new structure -- passive solar heating?

Responses

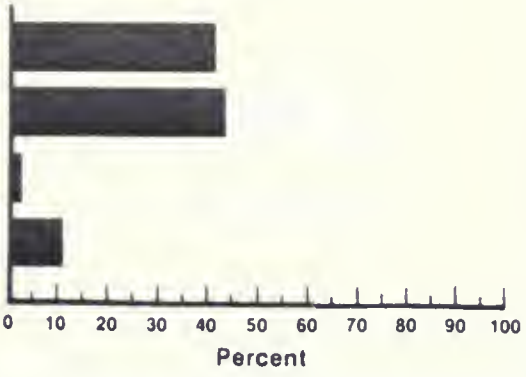
Choice of Answers	Number	Percent
0 - 9%	125	48.8
10 - 20%	93	36.3
NONE	14	5.5
NO RESPONSE	24	9.4
	256	100.0



Q-58 How much would you estimate the following building/design technique adds to the basic cost of a new structure -- solar greenhouses/sun spaces?

Responses

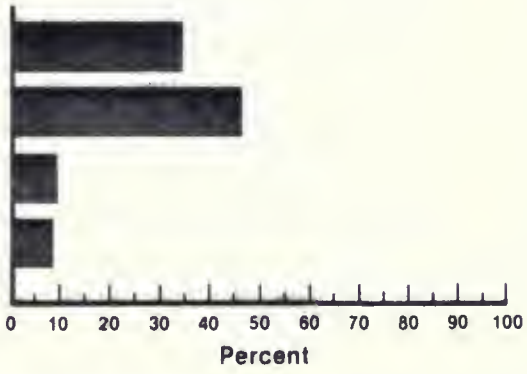
Choice of Answers	Number	Percent
0 - 9%	108	42.2
10 - 20%	114	44.5
NONE	7	2.7
NO RESPONSE	27	10.5
	256	100.0



Q-59 How much would you estimate the following building/design technique adds to the basic cost of a new structure -- earth sheltering?

Responses

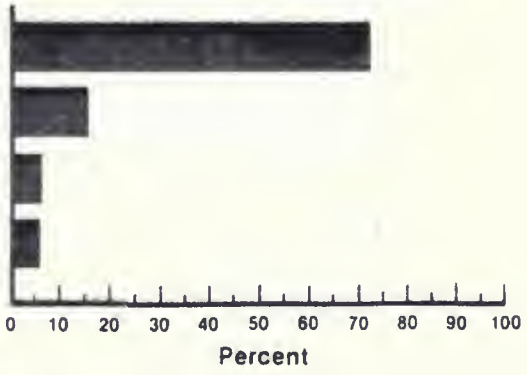
Choice of Answers	Number	Percent
0 - 9%	89	34.8
10 - 20%	119	46.5
NONE	25	9.8
NO RESPONSE	23	9.0
	256	100.0



Q-60 How much would you estimate the following building/design technique adds to the basic cost of a new structure -- double or triple pane windows?

Responses

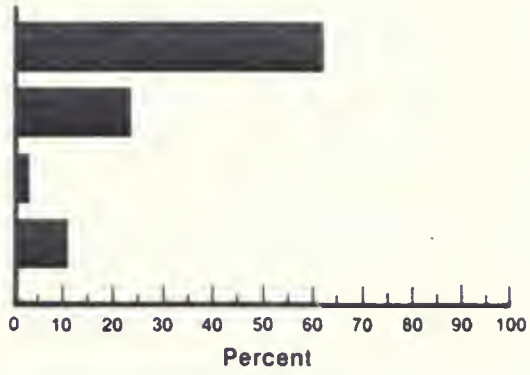
Choice of Answers	Number	Percent
0 - 9%	186	72.7
10 - 20%	39	15.2
NONE	16	6.3
NO RESPONSE	15	5.9
	256	100.0



Q-61 How much would you estimate the following building/design technique adds to the basic cost of a new structure -- high efficiency furnaces (e.g., pulse combustion)?

Responses

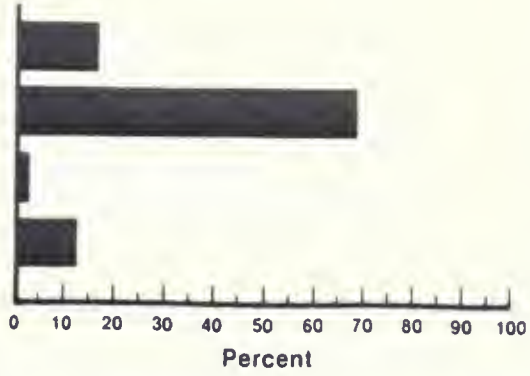
Choice of Answers	Number	Percent
0 - 9%	161	62.9
10 - 20%	62	24.2
NONE	7	2.7
NO RESPONSE	26	10.2
	256	100.0



Q-62 How much would you estimate the following building/design technique adds to the basic cost of a new structure -- double envelope construction?

Responses

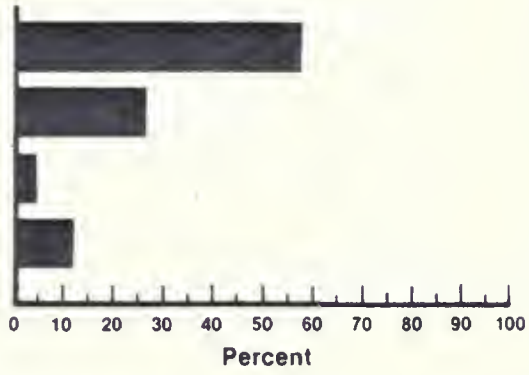
Choice of Answers	Number	Percent
0 - 9%	40	15.6
10 - 20%	177	69.1
NONE	7	2.7
NO RESPONSE	32	12.5
	256	100.0



Q-63 How much would you estimate the following building/design technique adds to the basic cost of a new structure -- air-to-air heat exchangers?

Responses

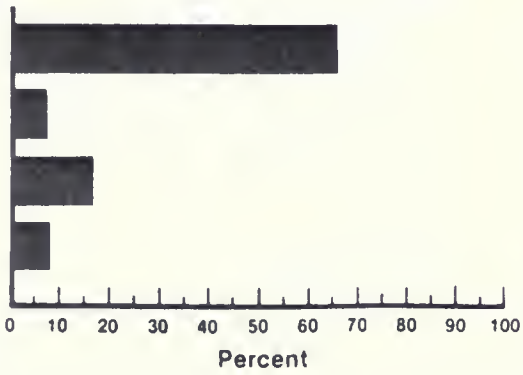
Choice of Answers	Number	Percent
0 - 9%	147	57.4
10 - 20%	66	25.8
NONE	13	5.1
NO RESPONSE	30	11.7
	256	100.0



Q-64 How much would you estimate the following building/design technique adds to the basic cost of a new structure -- energy efficient appliances?

Responses

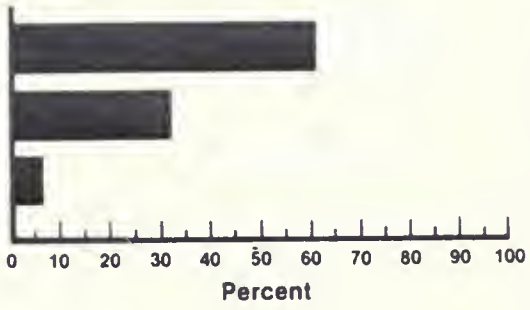
Choice of Answers	Number	Percent
0 - 9%	170	66.4
10 - 20%	21	8.2
NONE	43	16.8
NO RESPONSE	22	8.6
	256	100.0



Q-65 The State of Montana is considering the use of a home energy rating system similar to the EPA car mileage system. Would you support the adoption of such a rating system for new and existing homes?

Responses

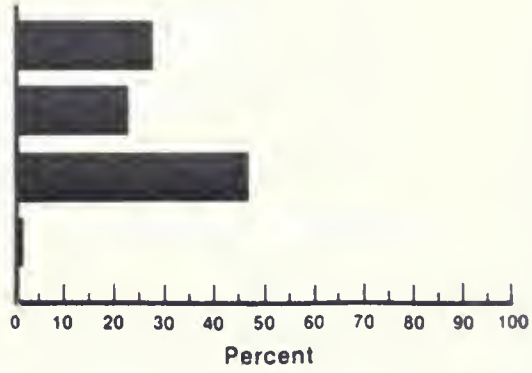
Choice of Answers	Number	Percent
YES	154	60.2
NO	84	32.8
NO RESPONSE	18	7.0
	256	100.0



Q-66 How many energy workshops or professional meetings dealing with energy conservation or renewable energy have you attended in the past year?

Responses

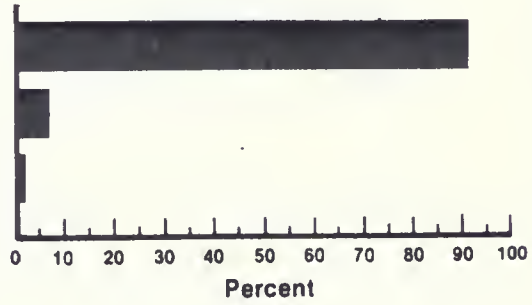
Choice of Answers	Number	Percent
MORE THAN ONE	72	28.1
ONE	60	23.4
NONE	121	47.3
NO RESPONSE	3	1.2
	256	100.0



Q-67 Would you be willing to attend workshops related to energy conservation or renewable energy if they were available in your area?

Responses

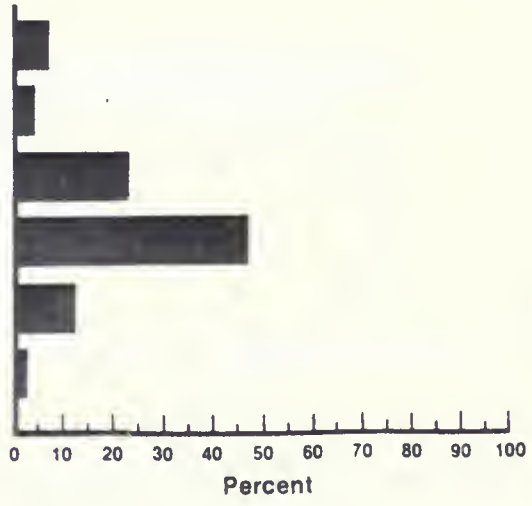
Choice of Answers	Number	Percent
YES	232	90.6
NO	20	7.8
NO RESPONSE	4	1.6
	256	100.0



Q-68 Who do you feel should pay for these workshops?

Responses

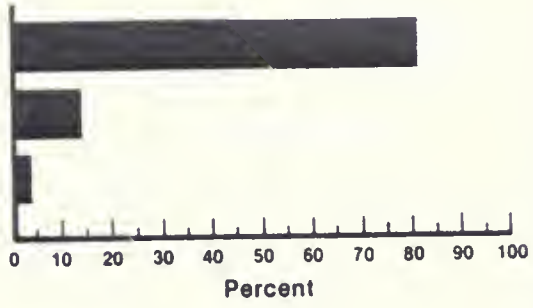
Choice of Answers	Number	Percent
STATE GOVERNMENT	20	7.8
FEDERAL GOVERNMENT	13	5.1
UTILITY COMPANIES	61	23.8
PARTICIPANTS	122	47.7
MULTIPLE RESPONSE	33	12.9
NO RESPONSE	7	2.7
	256	100.0



Q-69 Have you found information on conservation or renewable energy from professional associations/publications?

Responses

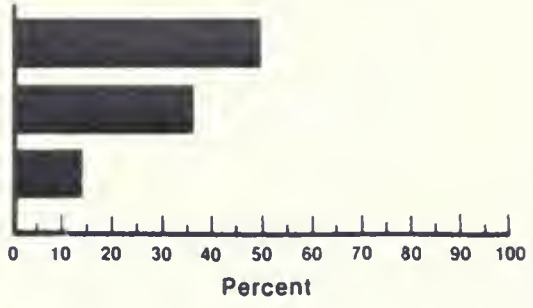
Choice of Answers	Number	Percent
YES	207	80.9
NO	38	14.8
NO RESPONSE	11	4.3
	256	100.0



Q-70 Have you found information on conservation or renewable energy from the TV?

Responses

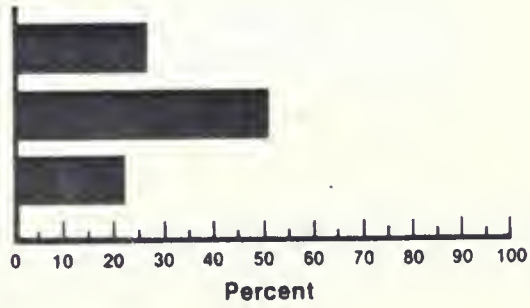
Choice of Answers	Number	Percent
YES	128	50.0
NO	90	35.2
NO RESPONSE	38	14.8
	256	100.0



Q-71 Have you found information on conservation or renewable energy from the radio?

Responses

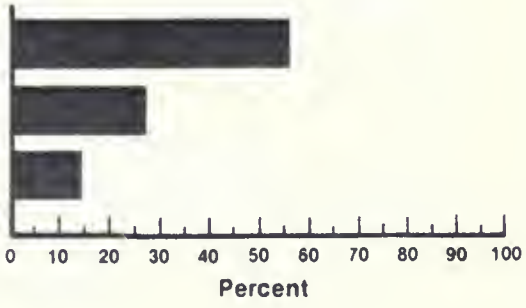
Choice of Answers	Number	Percent
YES	67	26.2
NO	130	50.8
NO RESPONSE	59	23.0
	256	100.0



Q-72 Have you found information on conservation or renewable energy from newspapers?

Responses

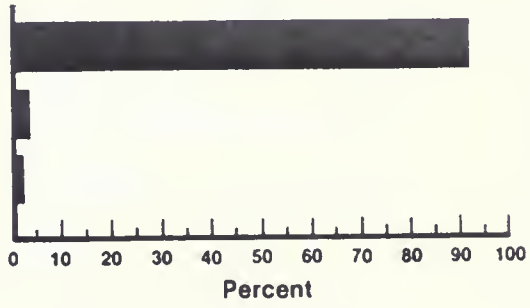
Choice of Answers	Number	Percent
YES	146	57.0
NO	72	28.1
NO RESPONSE	38	14.8
	256	100.0



Q-73 Have you found information on conservation or renewable energy from magazines?

Responses

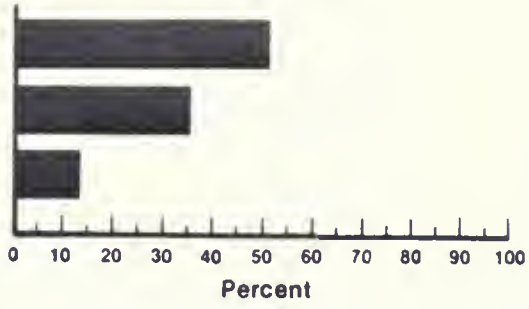
Choice of Answers	Number	Percent
YES	236	92.2
NO	12	4.7
NO RESPONSE	8	3.1
	256	100.0



Q-74 Have you found information on conservation or renewable energy from energy workshops?

Responses

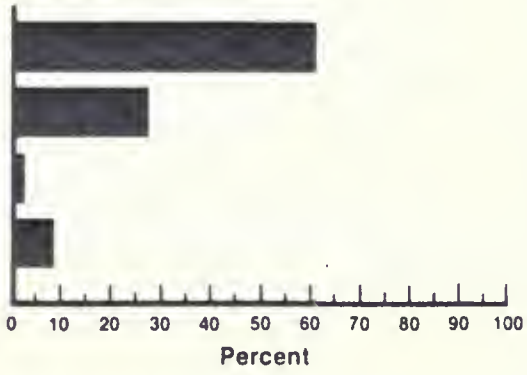
Choice of Answers	Number	Percent
YES	130	50.8
NO	90	35.2
NO RESPONSE	36	14.1
	256	100.0



Q-75 How helpful do you think professional associations/publications are in delivering information on energy conservation and renewable energy?

Responses

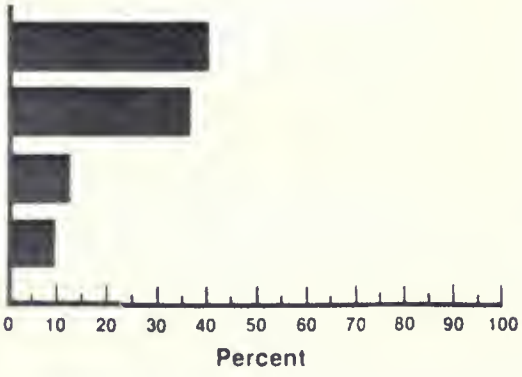
Choice of Answers	Number	Percent
VERY HELPFUL	154	60.2
SOMEWHAT HELPFUL	72	28.1
NOT HELPFUL	7	2.7
NO RESPONSE	23	9.0
	256	100.0



Q-76 How helpful do you think the TV is in delivering information on energy conservation and renewable energy?

Responses

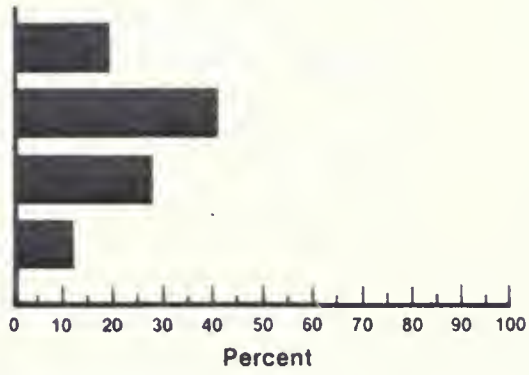
Choice of Answers	Number	Percent
VERY HELPFUL	103	40.2
SOMEWHAT HELPFUL	96	37.5
NOT HELPFUL	32	12.5
NO RESPONSE	25	9.8
	256	100.0



Q-77 How helpful do you think the radio is in delivering information on energy conservation and renewable energy?

Responses

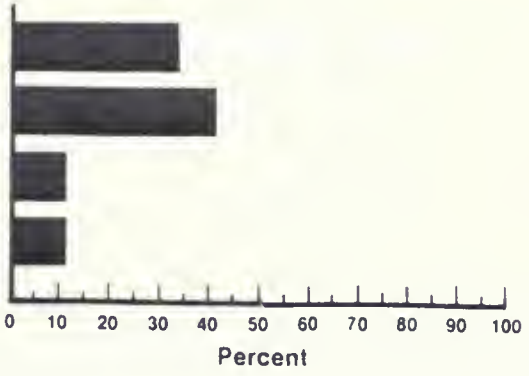
Choice of Answers	Number	Percent
VERY HELPFUL	50	19.5
SOMEWHAT HELPFUL	103	40.2
NOT HELPFUL	72	28.1
NO RESPONSE	31	12.1
	256	100.0



Q-78 How helpful do you think newspapers are in delivering information on energy conservation and renewable energy?

Responses

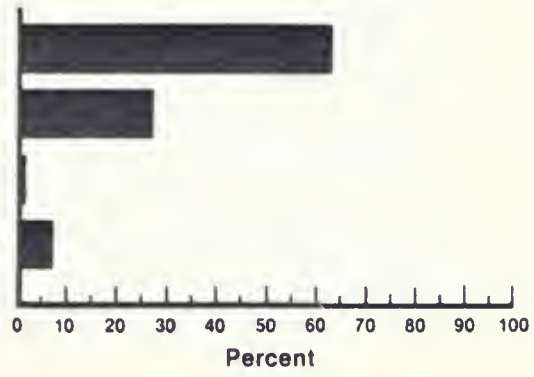
Choice of Answers	Number	Percent
VERY HELPFUL	89	34.8
SOMEWHAT HELPFUL	111	43.4
NOT HELPFUL	28	10.9
NO RESPONSE	28	10.9
	256	100.0



Q-79 How helpful do you think magazines are in delivering information on energy conservation and renewable energy?

Responses

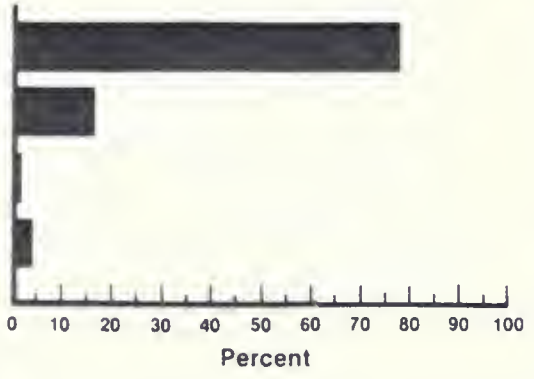
Choice of Answers	Number	Percent
VERY HELPFUL	162	63.3
SOMEWHAT HELPFUL	71	27.7
NOT HELPFUL	3	1.2
NO RESPONSE	20	7.8
	256	100.0



Q-80 How helpful do you think energy workshops are in delivering information on energy conservation and renewable energy?

Responses

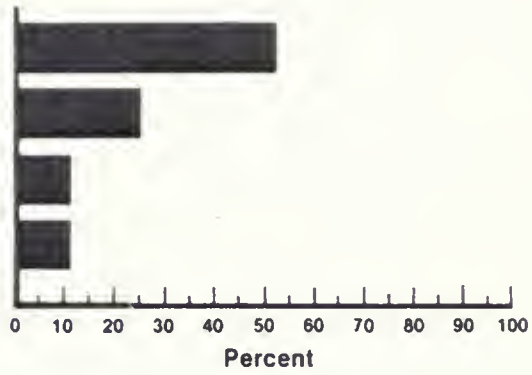
Choice of Answers	Number	Percent
VERY HELPFUL	200	78.1
SOMEWHAT HELPFUL	41	16.0
NOT HELPFUL	3	1.2
NO RESPONSE	12	4.7
	256	100.0



Q-81 What type of buildings do you primarily build or design?

Responses

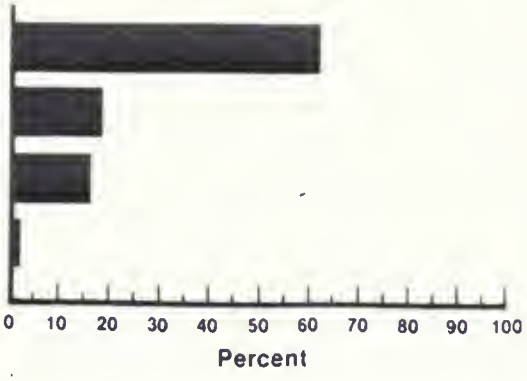
Choice of Answers	Number	Percent
RESIDENTIAL	136	53.1
COMMERCIAL	64	25.0
RESIDENTIAL & COMMERCIAL	28	10.9
NO RESPONSE	28	10.9
	256	100.0



Q-82 How many employees does your firm employ?

Responses

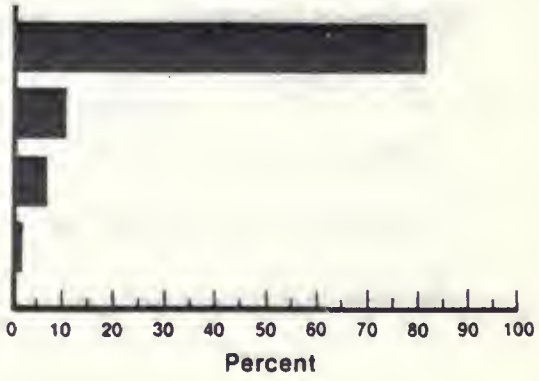
Choice of Answers	Number	Percent
LESS THAN 5	160	62.5
6 TO 9	50	19.5
10 OR MORE	42	16.4
NO RESPONSE	4	1.6
	256	100.0



Q-83 Which best describes your current position with your firm?

Responses

Choice of Answers	Number	Percent
OWNER	208	81.3
PARTNER	26	10.2
MANAGER/EMPLOYEE	19	7.4
NO RESPONSE	3	1.2
	256	100.0



APPENDIX B cont'd.

ARCHITECTS

1. SUMMARY OF RESULTS

2. QUESTIONNAIRES

3. SURVEY HISTOGRAMS

SUMMARY OF RESULTS

ENERGY OUTREACH SURVEY

ARCHITECTS

Architects in Montana appear to follow patterns similar to that of the respondents in the builders survey, indicating their greatest familiarity with standard insulation (97%), multiple-pane windows (89%), passive solar heating (67%), and their least knowledge with more technical conservation measures such as high efficiency furnaces (19%), energy-efficient appliances (25%), air-to-air heat exchangers, and double envelope construction (31%). These similarities are further evidenced by those conservation techniques which have been used by the architects most frequently which were passive solar heating (76%) and triple-pane windows (58%). Important differences were an increased emphasis on earth sheltering (51%) and a decreased use in energy-efficient appliances (43%).

Approximately half of the architects estimated that passive solar heating and energy-efficient appliances are presently used in more than 10% of the buildings in their area. Those techniques which most architects thought were least used include super insulation, active solar heating, double envelope conatruction, air-to-air heat exchangers, earth sheltering and high efficiency furnaces.

Consumer requirements motivate architects to use energy-efficient techniques, materials, and products. This is the same motivation found among builders. The energy design which over 65% of the architects thought enhanced the salability of buildings was passive solar heating, closely followed by solar greenhouses which were rated most

desirable by 47% of the respondents. Of course, both of these techniques can be important in aesthetically improving buildings' appearances when correctly incorporated in the design. Those features which architects rated as being of lesser impact on the salability of buildings included items which are either visible or difficult to incorporate into the design such as active or passive solar heating, double envelope construction, and air-to-air heat exchangers.

A contrast with builders surveyed is the fact that approximately 82% of the architects are not involved in selling the buildings they design, whereas 37% of the builders are involved in marketing their product. Consequently, almost none of the architects indicated that they use any energy-efficient techniques as selling points.

Architects also indicated that installation of many of the energy-efficient techniques would make significant increases in the cost of construction. In particular, 90% of the architects felt that active solar heating or double envelope construction would increase construction costs by as much as 20%. Furthermore, 60 to 75% felt that standard insulation, passive solar heating, double-pane windows, air-to-air heat exchangers, energy-efficient appliances, and high efficient furnaces could increase the cost as much as 9%. The persons most familiar with construction costs indicated significantly increased expenditures would be required to fully utilize the most effective renewable energy and energy conservation measures.

A significantly high portion (56%) of the architects favored the adoption of a home energy rating system similar to the EPA mileage

system.

Architects have been very involved in professional meetings and workshops dealing with energy conservation as over 72% reported attending at least one such meeting during the past year. This endorsement of energy conservation is further reinforced by the fact that 93% of the respondents would attend energy related workshops and 69% would be willing to pay for these workshops. This is the highest endorsement of energy workshops by any of the nine groups surveyed. Ninety-seven percent of the architects have found useful information on energy conservation in their professional publications, while 94% reported ordinary magazines as containing useful information. Architects found little useful information in the standard media--radio, television and newspapers.

Seventy-one percent of the architects surveyed indicated that they primarily designed commercial buildings. Consequently, it is apparent that energy conservation which can be achieved through increased awareness and cooperation of architects will be in the commercial sector of the economy. Also, those energy conservation measures which will tend to be most interesting and useful to architects will be those readily implemented in commercial applications. It follows that any major impact on energy conservation in residential structures must be achieved through the consumers and the builders.

MONTANA CHAPTER

THE AMERICAN INSTITUTE OF ARCHITECTS

January 10, 1983

Fellow Architect:

The Montana Department of Natural Resources and Conservation (DNRC) is conducting a survey to assist in targeting its information, education and outreach activities for renewable energy and energy conservation. They are asking for our participation in this effort.

Please take a few minutes of your time to review and complete the attached questionaire in order that they may have a representative response from the profession.

Sincerely

George A. Barrow, AIA
President - Elect

GAB:mm

P O Box 20996. 1629 Ave. D. Billings, MT 59104. Phone 406/ 259-7300

QUESTIONNAIRES

ENERGY OUTREACH SURVEY
ARCHITECTS

INSTRUCTIONS: Please put an "X" in the appropriate box for each question.

Q-1 How would you rate your knowledge of the following energy conservation building/design techniques, materials, or products?

		VERY FAMILIAR 1	SOMEWHAT FAMILIAR 2	NOT FAMILIAR 3	
1)	INSULATION (R-38 CEILING, R-19 WALLS)	☐	☐	☐	(1)
2)	SUPER INSULATION (R-60 + CEILING, R-40 WALLS)	☐	☐	☐	(2)
3)	ACTIVE SOLAR HEATING	☐	☐	☐	(3)
4)	PASSIVE SOLAR HEATING	☐	☐	☐	(4)
5)	SOLAR GREENHOUSES/SUN SPACES	☐	☐	☐	(5)
6)	EARTH SHELTERING	☐	☐	☐	(6)
7)	DOUBLE OR TRIPLE PANE WINDOWS	☐	☐	☐	(7)
8)	HIGH EFFICIENCY FURNACES (e.g., PULSE COMBUSTION)	☐	☐	☐	(8)
9)	DOUBLE ENVELOPE CONSTRUCTION	☐	☐	☐	(9)
10)	AIR-TO-AIR HEAT EXCHANGERS	☐	☐	☐	(10)
11)	ENERGY EFFICIENT APPLIANCES	☐	☐	☐	(11)

Q-2 Which of the following energy conservation building/design techniques, materials, or products have you used or do you plan to use?

		USED/ NOW USING 1	PLAN TO USE 2	DO NOT PLAN TO USE 3	
1)	SUPER INSULATION (R-60 + CEILING, R-40 WALLS)	☐	☐	☐	(12)
2)	ACTIVE SOLAR HEATING	☐	☐	☐	(13)
3)	PASSIVE SOLAR HEATING	☐	☐	☐	(14)
4)	SOLAR GREENHOUSES/SUN SPACES	☐	☐	☐	(15)
5)	EARTH SHELTERING	☐	☐	☐	(16)
6)	TRIPLE PANE WINDOWS	☐	☐	☐	(17)
7)	HIGH EFFICIENCY FURNACES (e.g., PULSE COMBUSTION)	☐	☐	☐	(18)
8)	DOUBLE ENVELOPE CONSTRUCTION	☐	☐	☐	(19)
9)	AIR-TO-AIR HEAT EXCHANGERS	☐	☐	☐	(20)
10)	ENERGY EFFICIENT APPLIANCES	☐	☐	☐	(21)

Q-3 What is the primary reason you would use these techniques, materials, or products?

1) CUSTOMER SPECIFICATIONS ☐1
2) GENERAL CONSUMER DEMAND ☐2
3) FINANCING REQUIREMENTS ☐3
4) PERSONAL INTEREST ☐4

(22)

Q-4 What would you estimate to be the amount of usage of the following building/design techniques in your geographic area?

		MORE THAN 10% 1	LESS THAN 10% 2	NONE 3	
1)	SUPER INSULATION (R-60 + CEILING, R-40 WALLS)	☐	☐	☐	(23)
2)	ACTIVE SOLAR HEATING	☐	☐	☐	(24)
3)	PASSIVE SOLAR HEATING	☐	☐	☐	(25)
4)	SOLAR GREENHOUSES/SUN SPACES	☐	☐	☐	(26)
5)	EARTH SHELTERING	☐	☐	☐	(27)
6)	TRIPLE PANE WINDOWS	☐	☐	☐	(28)
7)	HIGH EFFICIENCY FURNACES (e.g., PULSE COMBUSTION)	☐	☐	☐	(29)
8)	DOUBLE ENVELOPE CONSTRUCTION	☐	☐	☐	(30)
9)	AIR-TO-AIR HEAT EXCHANGERS	☐	☐	☐	(31)
10)	ENERGY EFFICIENT APPLIANCES	☐	☐	☐	(32)

Q-5 To what extent do you feel the following building/design techniques, materials, or products enhance the salability of buildings or structures?

		GREAT DEAL 1	SOMEWHAT 2	NOT AT ALL 3	
1)	SUPER INSULATION (R-60 + CEILING, R-40 WALLS)	☐	☐	☐	(33)
2)	ACTIVE SOLAR HEATING	☐	☐	☐	(34)
3)	PASSIVE SOLAR HEATING	☐	☐	☐	(35)
4)	SOLAR GREENHOUSES/SUN SPACES	☐	☐	☐	(36)
5)	EARTH SHELTERING	☐	☐	☐	(37)
6)	TRIPLE PANE WINDOWS	☐	☐	☐	(38)
7)	HIGH EFFICIENCY FURNACES (e.g., PULSE COMBUSTION	☐	☐	☐	(39)
8)	DOUBLE ENVELOPE CONSTRUCTION	☐	☐	☐	(40)
9)	AIR-TO-AIR HEAT EXCHANGERS	☐	☐	☐	(41)
10)	ENERGY EFFICIENT APPLIANCES	☐	☐	☐	(42)

Q-6 Are you involved in marketing or selling the buildings or homes you build or design?

1) YES ☐1

2) NO ☐2 (43)

IF NO, SKIP TO Q-8

Q-7 If YES, which of the following features do you use as selling points?

		YES 1	NO 2	
1)	INSULATION (R-60 + CEILING, R-40 WALLS)	☐	☐	(44)
2)	ACTIVE SOLAR HEATING	☐	☐	(45)
3)	PASSIVE SOLAR HEATING	☐	☐	(46)
4)	SOLAR GREENHOUSES/SUN SPACES	☐	☐	(47)
5)	EARTH SHELTERING	☐	☐	(48)
6)	TRIPLE PANE WINDOWS	☐	☐	(49)
7)	HIGH EFFICIENCY FURNACES (e.g., PULSE COMBUSTION)	☐	☐	(50)
8)	DOUBLE ENVELOPE CONSTRUCTION	☐	☐	(51)
9)	AIR-TO-AIR HEAT EXCHANGERS	☐	☐	(52)
10)	ENERGY EFFICIENT APPLIANCES	☐	☐	(53)

Q-8 How much would you estimate the following building/design techniques, materials, or products add to the basic cost of a new structure?

		0-9% 1	10-20% 2	NONE 3	
1)	INSULATION (R-38 CEILING, R-19 WALLS)	☐	☐	☐	(54)
2)	SUPER INSULATION (R-60 + CEILING, R-40 WALLS)	☐	☐	☐	(55)
3)	ACTIVE SOLAR HEATING	☐	☐	☐	(56)
4)	PASSIVE SOLAR HEATING	☐	☐	☐	(57)
5)	SOLAR GREENHOUSES/SUN SPACES	☐	☐	☐	(58)
6)	EARTH SHELTERING	☐	☐	☐	(59)

Q-8 (continued)

		0-9% 1	10-20% 2	NONE 3	
7)	DOUBLE OR TRIPLE PANE WINDOWS	☐	☐	☐	(60)
8)	HIGH EFFICIENCY FURNACES (e.g., PULSE COMBUSTION)	☐	☐	☐	(61)
9)	DOUBLE ENVELOPE CONSTRUCTION	☐	☐	☐	(62)
10)	AIR-TO-AIR HEAT EXCHANGERS	☐	☐	☐	(63)
11)	ENERGY EFFICIENT APPLIANCES	☐	☐	☐	(64)

Q-9 The State of Montana is considering the use of a home energy rating system similar to the EPA car mileage system. Would you support the adoption of such a rating system for new and existing homes?

1) YES ☐1

2) NO ☐2 (65)

Q-10 How many energy workshops or professional meetings dealing with energy conservation or renewable energy have you attended in the past year?

1) MORE THAN ONE ☐1

2) ONE ☐2 (66)

3) NONE ☐3

Q-11 Would you be willing to attend workshops related to energy conservation or renewable energy if they were available in your area?

1) YES ☐1

2) NO ☐2 (67)

Q-12 Who do you feel should pay for these workshops?

1) STATE GOVERNMENT ☐1

2) FEDERAL GOVERNMENT ☐2

3) UTILITY COMPANIES ☐3 (68)

4) PARTICIPANTS ☐4

Q-13 Have you found information on energy conservation or renewable energy from any of the following sources?

		YES 1	NO 2	
1)	PROFESSIONAL ASSOCIATIONS/ PUBLICATIONS	☐	☐	(69)
2)	TV	☐	☐	(70)
3)	RADIO	☐	☐	(71)
4)	NEWSPAPERS	☐	☐	(72)
5)	MAGAZINES	☐	☐	(73)
6)	ENERGY WORKSHOPS	☐	☐	(74)

Q-14 Which of the following sources do you think could best be used to deliver information on energy conservation and renewable energy?

		VERY HELPFUL 1	SOMEWHAT HELPFUL 2	NOT HELPFUL 3	
1)	PROFESSIONAL ASSOCIATIONS/ PUBLICATIONS	☐	☐	☐	(75)
2)	TV	☐	☐	☐	(76)
3)	RADIO	☐	☐	☐	(77)
4)	NEWSPAPERS	☐	☐	☐	(78)
5)	MAGAZINES	☐	☐	☐	(79)
6)	ENERGY WORKSHOPS	☐	☐	☐	(80)

Q-15 What type of buildings do you primarily build or design?

1)	RESIDENTIAL	☐1
2)	COMMERCIAL	☐2

(81)

Q-16 How many employees does your firm employ?

1)	LESS THAN 5	☐1
2)	6 TO 9	☐2
3)	10 OR MORE	☐3

(82)

Q-17 Which best describes your current position with your firm?

1)	OWNER	☐1
2)	PARTNER	☐2
3)	MANAGER/EMPLOYEE	☐3

(83)

Is there anything else you would like to tell us that would assist us in delivering energy conservation and renewable energy information? If so, please use this space for that purpose.

Your contribution to this effort is greatly appreciated. If you would like a summary of results, please print your name and address on the back of the return envelope (NOT on this questionnaire), and we will mail you a copy.

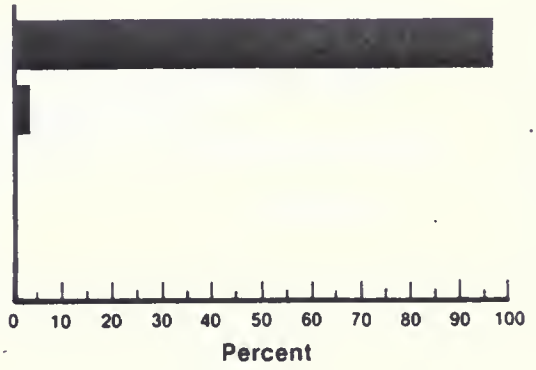
SURVEY HISTOGRAMS

ENERGY OUTREACH SURVEY
ARCHITECTS

Q-1 How would you rate your knowledge of the following energy conservation building/design technique -- insulation (R-38 ceiling, R-19 walls)?

Responses

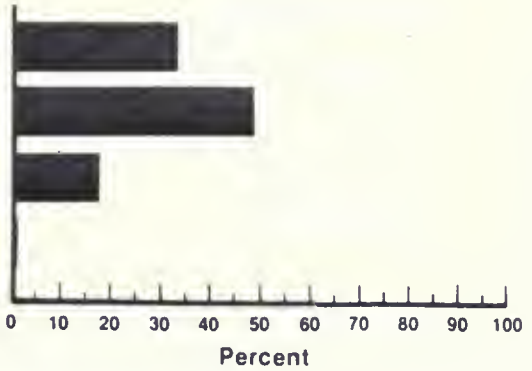
Choice of Answers	Number	Percent
VERY FAMILIAR	217	96.9
SOMEWHAT FAMILIAR	7	3.1
NOT FAMILIAR	0	0.0
NO RESPONSE	0	0.0
	224	100.0



Q-2 How would you rate your knowledge of the following energy conservation building/design technique -- super insulation (R-60+ ceiling, R-40 walls)?

Responses

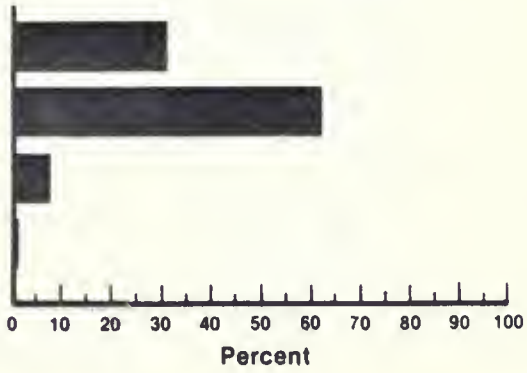
Choice of Answers	Number	Percent
VERY FAMILIAR	75	33.5
SOMEWHAT FAMILIAR	111	49.6
NOT FAMILIAR	37	16.5
NO RESPONSE	1	.4
	224	100.0



Q-3 How would you rate your knowledge of the following energy conservation building/design technique -- active solar heating?

Responses

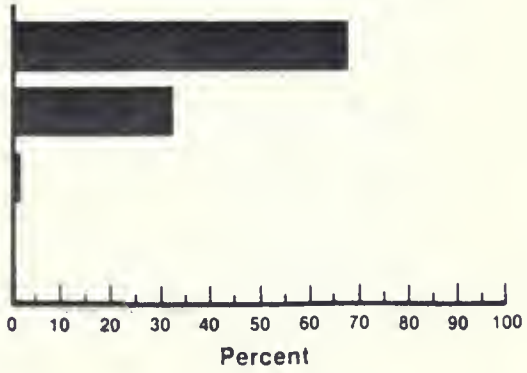
Choice of Answers	Number	Percent
VERY FAMILIAR	68	30.4
SOMEWHAT FAMILIAR	138	61.6
NOT FAMILIAR	17	7.6
NO RESPONSE	1	.4
	224	100.0



Q-4 How would you rate your knowledge of the following energy conservation building/design technique -- passive solar heating?

Responses

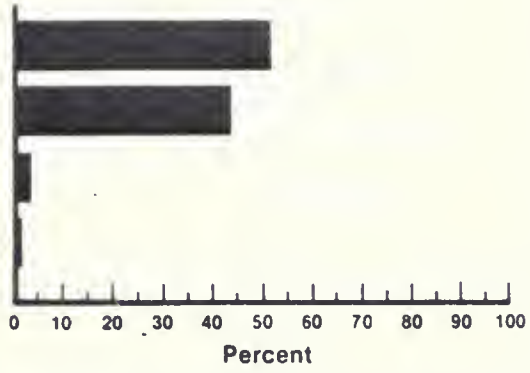
Choice of Answers	Number	Percent
VERY FAMILIAR	151	67.4
SOMEWHAT FAMILIAR	71	31.7
NOT FAMILIAR	2	.9
NO RESPONSE	0	0.0
	224	100.0



Q-5 How would you rate your knowledge of the following energy conservation building/design technique -- solar greenhouses/sun spaces?

Responses

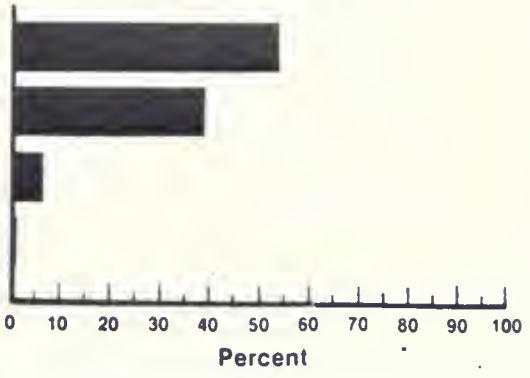
Choice of Answers	Number	Percent
VERY FAMILIAR	114	50.9
SOMEWHAT FAMILIAR	99	44.2
NOT FAMILIAR	9	4.0
NO RESPONSE	2	.9
	224	100.0



Q-6 How would you rate your knowledge of the following energy conservation building/design technique -- earth sheltering?

Responses

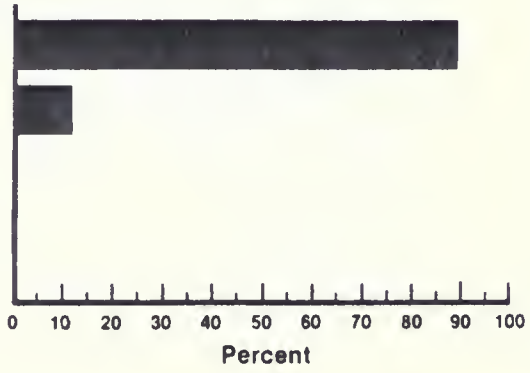
Choice of Answers	Number	Percent
VERY FAMILIAR	122	54.5
SOMEWHAT FAMILIAR	89	39.7
NOT FAMILIAR	12	5.4
NO RESPONSE	1	.4
	224	100.0



Q-7 How would you rate your knowledge of the following energy conservation building/design technique -- double or triple pane windows?

Responses

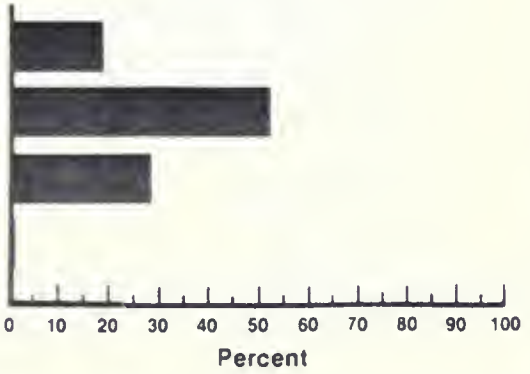
Choice of Answers	Number	Percent
VERY FAMILIAR	200	89.3
SOMEWHAT FAMILIAR	24	10.7
NOT FAMILIAR	0	0.0
NO RESPONSE	0	0.0
	224	100.0



Q-8 How would you rate your knowledge of the following energy conservation building/design technique -- high efficiency furnaces (e.g., pulse combustion)?

Responses

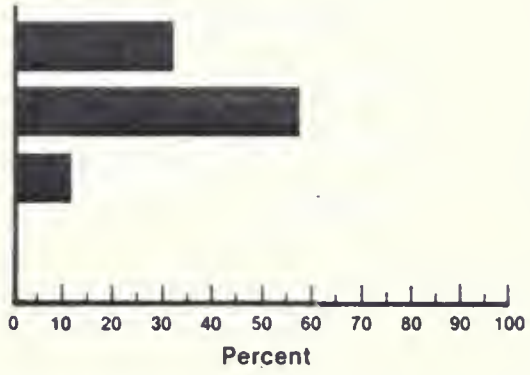
Choice of Answers	Number	Percent
VERY FAMILIAR	43	19.2
SOMEWHAT FAMILIAR.	116	51.8
NOT FAMILIAR	65	29.0
NO RESPONSE	0	0.0
	224	100.0



Q-9 How would you rate your knowledge of the following energy conservation building/design technique -- double envelope construction?

Responses

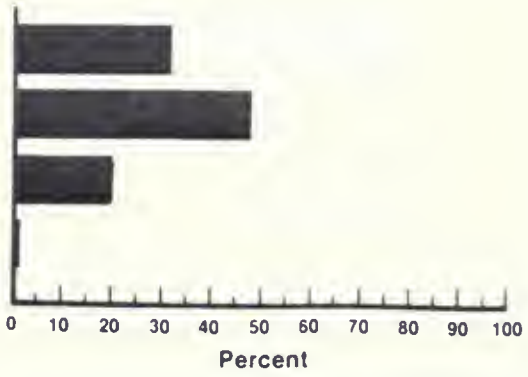
Choice of Answers	Number	Percent
VERY FAMILIAR	71	31.7
SOMEWHAT FAMILIAR	130	58.0
NOT FAMILIAR	23	10.3
NO RESPONSE	0	0.0
	224	100.0



Q-10 How would you rate your knowledge of the following energy conservation building design technique -- air-to-air heat exchangers?

Responses

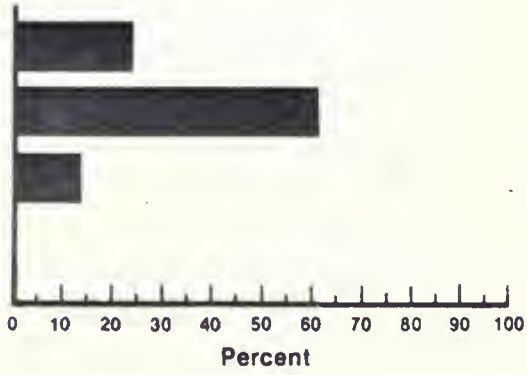
Choice of Answers	Number	Percent
VERY FAMILIAR	70	31.3
SOMEWHAT FAMILIAR	107	47.8
NOT FAMILIAR	45	20.1
NO RESPONSE	2	.9
	224	100.0



Q-11 How would you rate your knowledge of the following energy conservation building/design technique -- energy efficient appliances?

Responses

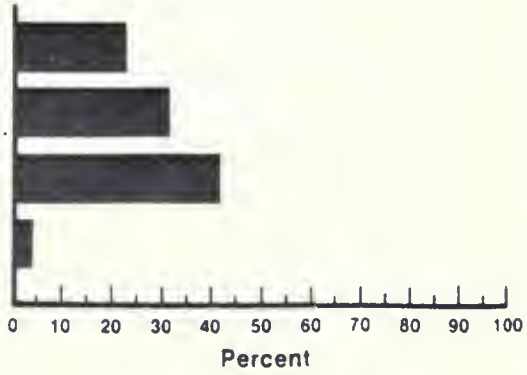
Choice of Answers	Number	Percent
VERY FAMILIAR	55	24.6
SOMEWHAT FAMILIAR	136	60.7
NOT FAMILIAR	33	14.7
NO RESPONSE	0	0.0
	224	100.0



Q-12 Have you used or do you plan to use the following energy conservation building/design technique -- super insulation (R-60+ ceiling, R-40 walls)?

Responses

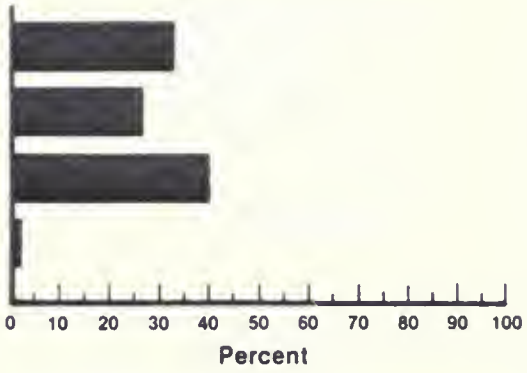
Choice of Answers	Number	Percent
USED/NOW USING	51	22.8
PLAN TO USE	71	31.7
DO NOT PLAN TO USE	92	41.1
NO RESPONSE	10	4.5
	224	100.0



Q-13 Have you used or do you plan to use the following energy conservation building/design technique -- active solar heating?

Responses

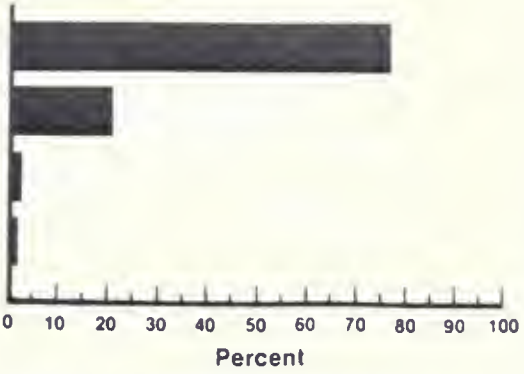
Choice of Answers	Number	Percent
USED/NOW USING	74	33.0
PLAN TO USE	58	25.9
DO NOT PLAN TO USE	90	40.2
NO RESPONSE	2	.9
	224	100.0



Q-14 Have you used or do you plan to use the following energy conservation building/design technique -- passive solar heating?

Responses

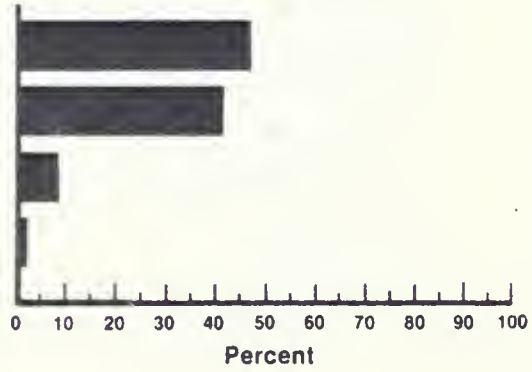
Choice of Answers	Number	Percent
USED/NOW USING	170	75.9
PLAN TO USE	46	20.5
DO NOT PLAN TO USE	6	2.7
NO RESPONSE	2	.9
	224	100.0



Q-15 Have you used or do you plan to use the following energy conservation building/design technique -- solar greenhouses/sun spaces?

Responses

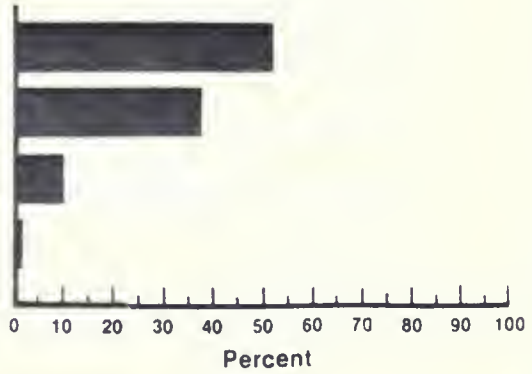
Choice of Answers	Number	Percent
USED/NOW USING	108	48.2
PLAN TO USE	92	41.1
DO NOT PLAN TO USE	21	9.4
NO RESPONSE	3	1.3
	224	100.0



Q-16 Have you used or do you plan to use the following energy conservation building/design technique -- earth sheltering?

Responses

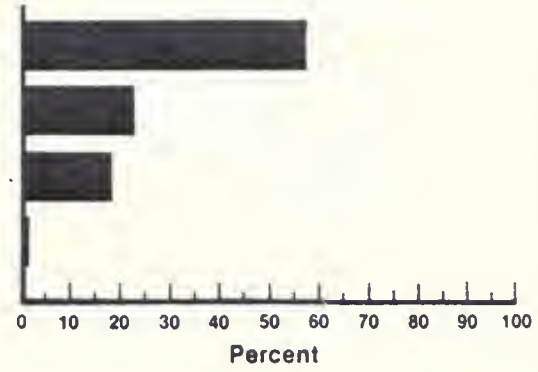
Choice of Answers	Number	Percent
USED/NOW USING	114	50.9
PLAN TO USE	84	37.5
DO NOT PLAN TO USE	23	10.3
NO RESPONSE	3	1.3
	224	100.0



Q-17 Have you used or do you plan to use the following energy conservation building/design technique -- triple pane windows?

Responses

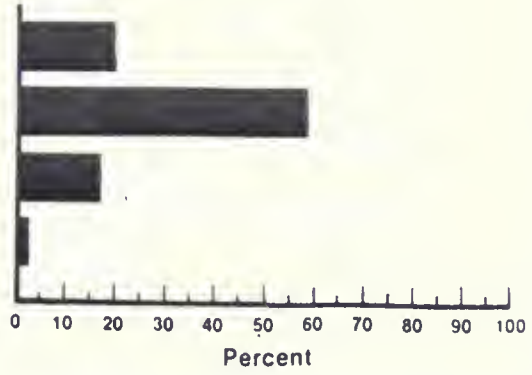
Choice of Answers	Number	Percent
USED/NOW USING	129	57.6
PLAN TO USE	51	22.8
DO NOT PLAN TO USE	42	18.8
NO RESPONSE	2	.9
	224	100.0



Q-18 Have you used or do you plan to use the following energy conservation building/design technique -- high efficiency furnaces (e.g., pulse combustion)?

Responses

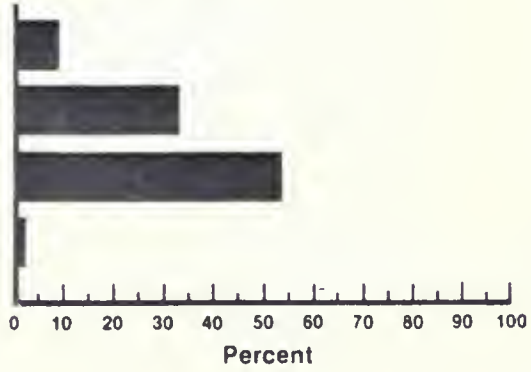
Choice of Answers	Number	Percent
USED/NOW USING	45	20.1
PLAN TO USE	133	59.4
DO NOT PLAN TO USE	39	17.4
NO RESPONSE	7	3.1
	224	100.0



Q-19 Have you used or do you plan to use the following energy conservation building/design technique -- double envelope construction?

Responses

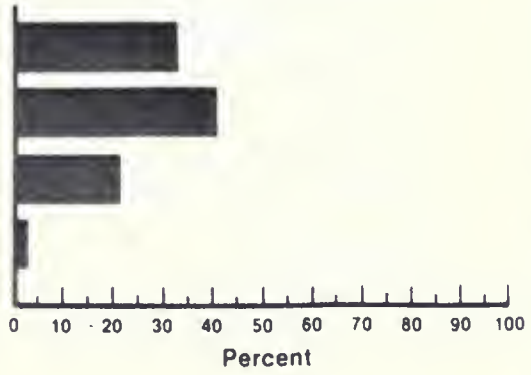
Choice of Answers	Number	Percent
USED/NOW USING	21	9.4
PLAN TO USE	76	33.9
DO NOT PLAN TO USE	123	54.9
NO RESPONSE	4	1.8
	224	100.0



Q-20 Have you used or do you plan to use the following energy conservation building/design technique -- air-to-air heat exchangers?

Responses

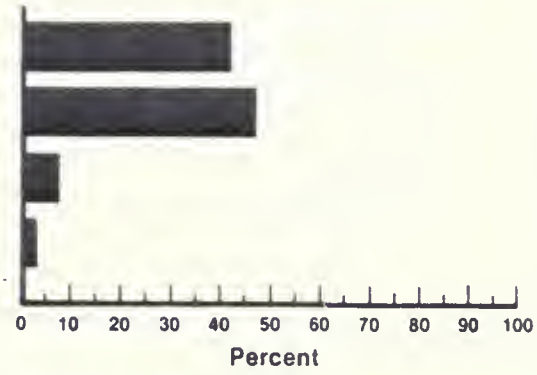
Choice of Answers	Number	Percent
USED/NOW USING	76	33.9
PLAN TO USE	93	41.5
DO NOT PLAN TO USE	48	21.4
NO RESPONSE	7	3.1
	224	100.0



Q-21 Have you used or do you plan to use the following energy conservation building/design technique -- energy efficient appliances?

Responses

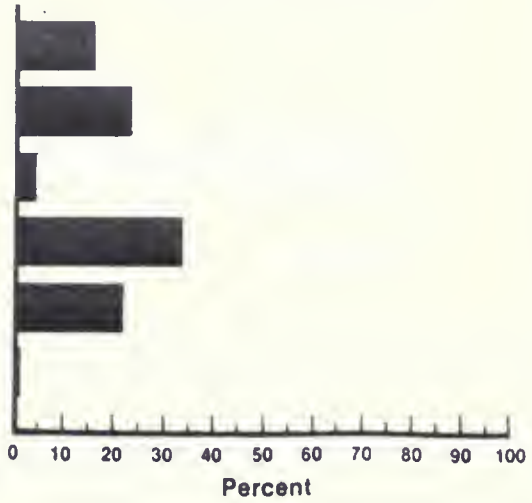
Choice of Answers	Number	Percent
USED/NOW USING	96	42.9
PLAN TO USE	103	46.0
DO NOT PLAN TO USE	18	8.0
NO RESPONSE	7	3.1
	224	100.0



Q-22 What is the primary reason you would use these techniques, materials, or products? (Note: see Q-12 through Q-21)

Responses

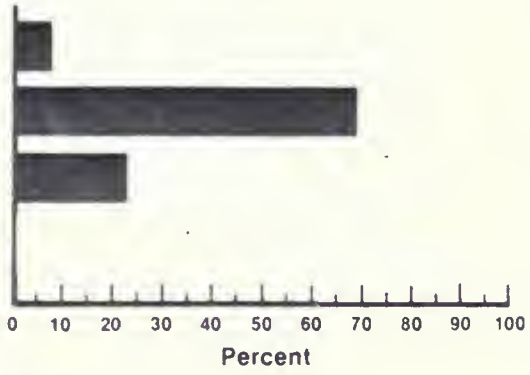
Choice of Answers	Number	Percent
CUSTOMER SPECIFICATIONS	34	15.2
GENERAL CONSUMER DEMAND	52	23.2
FINANCING REQUIREMENTS	10	4.5
PERSONAL INTEREST	76	33.9
MULTIPLE RESPONSE	49	21.8
NO RESPONSE	3	1.3
	224	100.0



Q-23 What would you estimate to be the amount of usage of the following building/design technique in your geographic area -- super insulation (R-60+ ceiling, R-40 walls)?

Responses

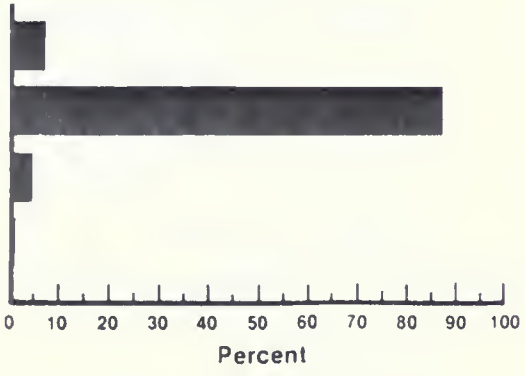
Choice of Answers	Number	Percent
MORE THAN 10%	18	8.0
LESS THAN 10%	155	69.2
NONE	51	22.8
NO RESPONSE	0	0.0
	224	100.0



Q-24 What would you estimate to be the amount of usage of the following building/design technique in your geographic area -- active solar heating?

Responses

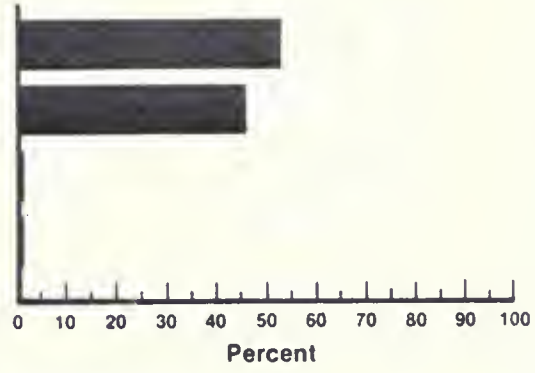
Choice of Answers	Number	Percent
MORE THAN 10%	17	7.6
LESS THAN 10%	196	87.5
NONE	10	4.5
NO RESPONSE	1	.4
	224	100.0



Q-25 What would you estimate to be the amount of usage of the following building/design technique in your geographic area -- passive solar heating?

Responses

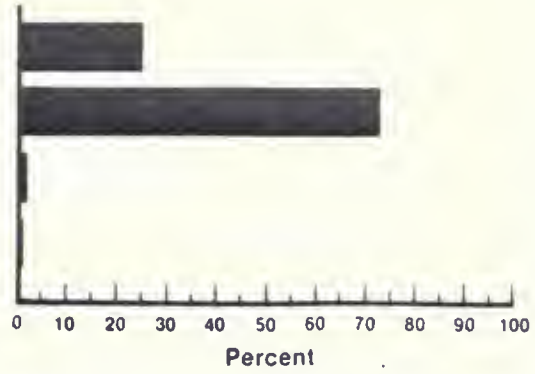
Choice of Answers	Number	Percent
MORE THAN 10%	119	53.1
LESS THAN 10%	103	46.0
NONE	1	.4
NO RESPONSE	1	.4
	224	100.0



Q-26 What would you estimate to be the amount of usage of the following building/design technique in your geographic area -- solar greenhouses/ sun spaces?

Responses

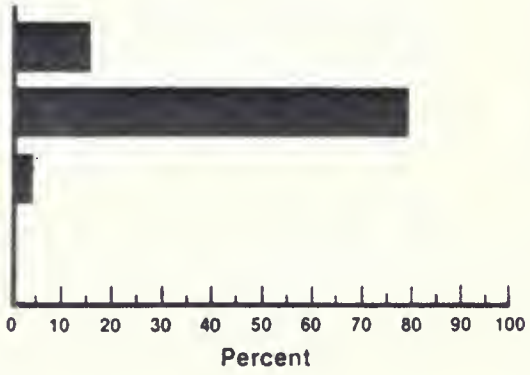
Choice of Answers	Number	Percent
MORE THAN 10%	57	25.4
LESS THAN 10%	164	73.2
NONE	2	.9
NO RESPONSE	1	.4
	224	100.0



Q-27 What would you estimate to be the amount of usage of the following building/design technique in your geographic area -- earth sheltering?

Responses

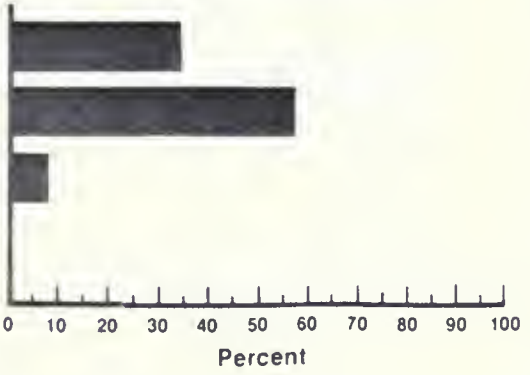
Choice of Answers	Number	Percent
MORE THAN 10%	35	15.6
LESS THAN 10%	179	79.9
NONE	10	4.5
NO RESPONSE	0	0.0
	224	100.0



Q-28 What would you estimate to be the amount of usage of the following building/design technique in your geographic area -- triple pane windows?

Responses

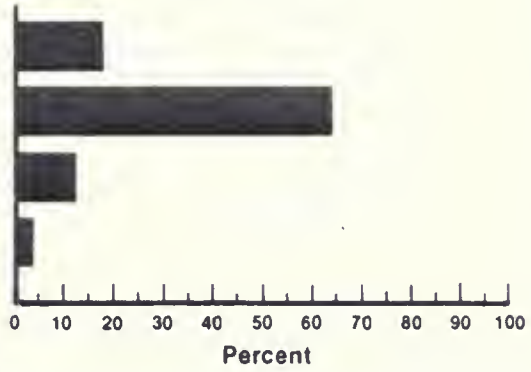
Choice of Answers	Number	Percent
MORE THAN 10%	78	34.8
LESS THAN 10%	128	57.1
NONE	18	8.0
NO RESPONSE	0	0.0
	224	100.0



Q-29 What would you estimate to be the amount of usage of the following building/design technique in your geographic area -- high efficiency furnaces (e.g., pulse combustion)?

Responses

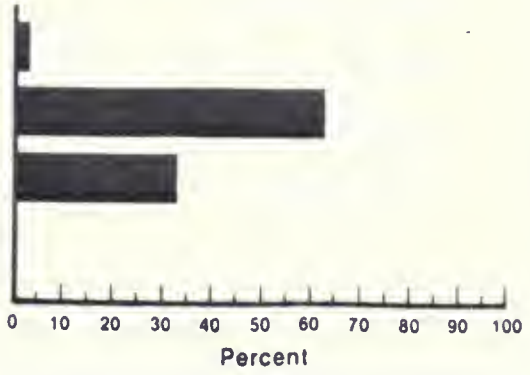
Choice of Answers	Number	Percent
MORE THAN 10%	42	18.8
LESS THAN 10%	145	64.7
NONE	28	12.5
NO RESPONSE	9	4.0
	224	100.0



Q-30 What would you estimate to be the amount of usage of the following building/design technique in your geographic area -- double envelope construction?

Responses

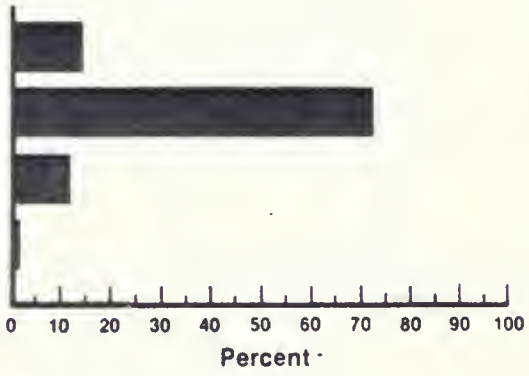
Choice of Answers	Number	Percent
MORE THAN 10%	7	3.1
LESS THAN 10%	142	63.4
NONE	75	33.5
NO RESPONSE	0	0.0
	224	100.0



Q-31 What would you estimate to be the amount of usage of the following building/design technique in your geographic area -- air-to-air heat exchangers?

Responses

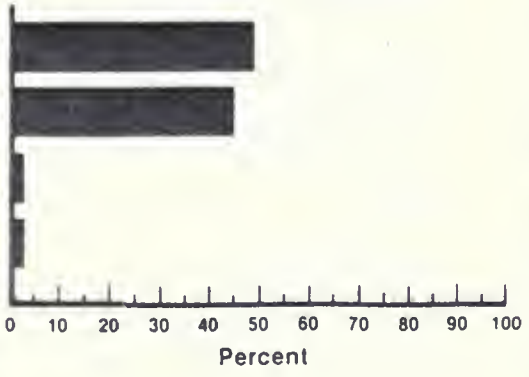
Choice of Answers	Number	Percent
MORE THAN 10%	33	14.7
LESS THAN 10%	161	71.9
NONE	28	12.5
NO RESPONSE	2	.9
	224	100.0



Q-32 What would you estimate to be the amount of usage of the following building/design technique in your geographic area -- energy efficient appliances?

Responses

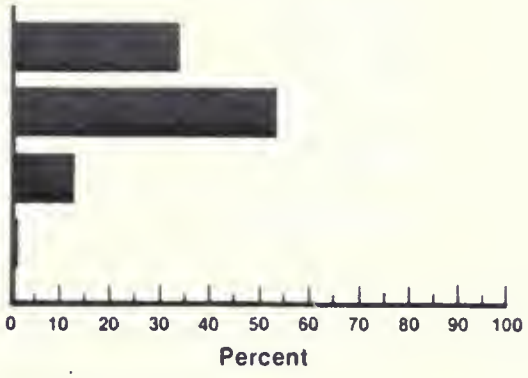
Choice of Answers	Number	Percent
MORE THAN 10%	110	49.1
LESS THAN 10%	102	45.5
NONE	6	2.7
NO RESPONSE	6	2.7
	224	100.0



Q-33 To what extent do you feel the following building/design technique enhances the salability of buildings or structures -- super insulation (R-60+ ceiling, R-40 walls)?

Responses

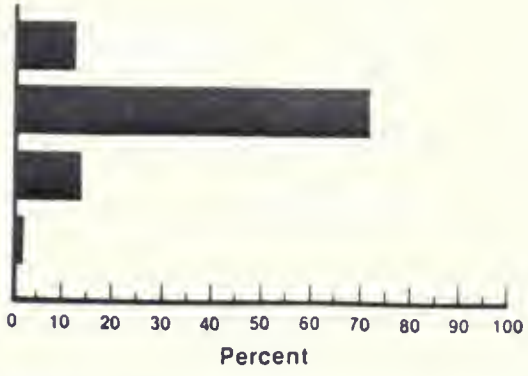
Choice of Answers	Number	Percent
GREAT DEAL	78	34.8
SOMEWHAT	118	52.7
NOT AT ALL	27	12.1
NO RESPONSE	1	.4
	224	100.0



Q-34 To what extent do you feel the following building/design technique enhances the salability of buildings or structures -- active solar heating?

Responses

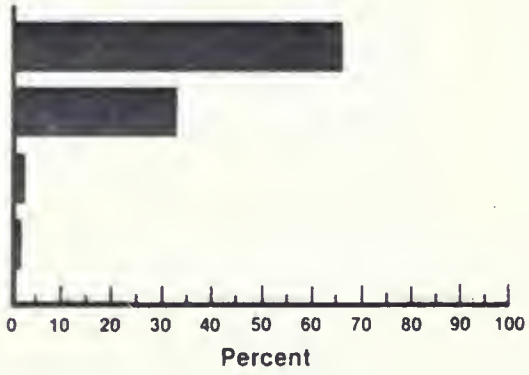
Choice of Answers	Number	Percent
GREAT DEAL	28	12.5
SOMEWHAT	161	71.9
NOT AT ALL	32	14.3
NO RESPONSE	3	1.3
	224	100.0



Q-35 To what extent do you feel the following building/design technique enhances the salability of buildings or structures -- passive solar heating?

Responses

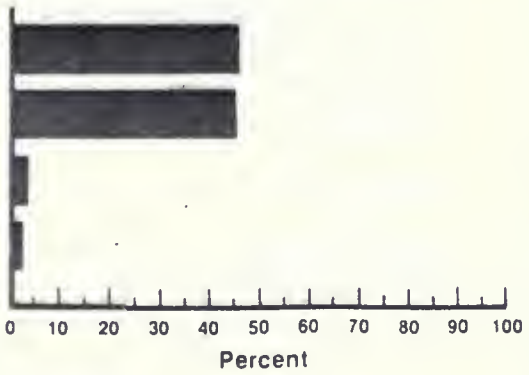
Choice of Answers	Number	Percent
GREAT DEAL	147	65.6
SOMEWHAT	72	32.1
NOT AT ALL	3	1.3
NO RESPONSE	2	.9
	224	100.0



Q-36 To what extent do you feel the following building/design technique enhances the salability of buildings or structures -- solar greenhouses/ sun spaces?

Responses

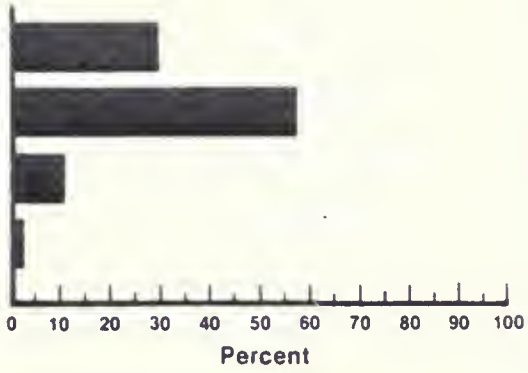
Choice of Answers	Number	Percent
GREAT DEAL	106	47.3
SOMEWHAT	105	46.9
NOT AT ALL	9	4.0
NO RESPONSE	4	1.8
	224	100.0



Q-37 To what extent do you feel the following building/design technique enhances the salability of buildings or structures -- passive solar heating?

Responses

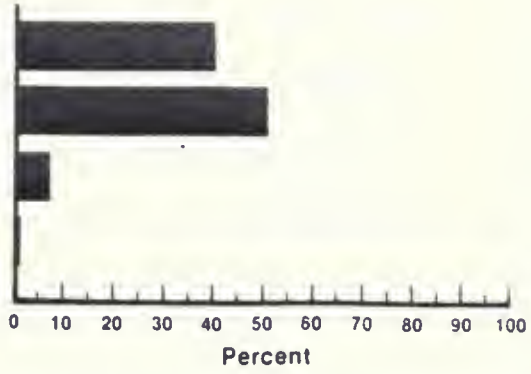
Choice of Answers	Number	Percent
GREAT DEAL	67	29.9
SOMEWHAT	129	57.6
NOT AT ALL	23	10.3
NO RESPONSE	5	2.2
	224	100.0



Q-38 To what extent do you feel the following building/design technique enhances the salability of buildings or structures -- triple pane windows?

Responses

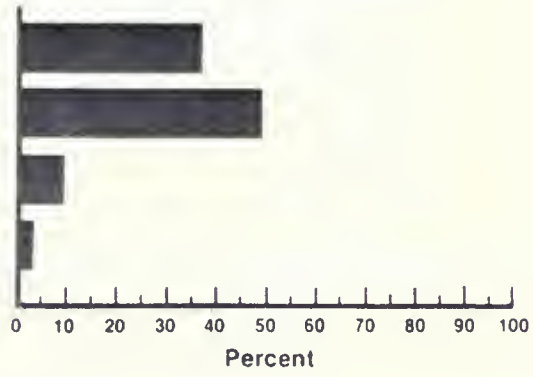
Choice of Answers	Number	Percent
GREAT DEAL	91	40.6
SOMEWHAT	115	51.3
NOT AT ALL	17	7.6
NO RESPONSE	1	.4
	224	100.0



Q-39 To what extent do you feel the following building/design technique enhances the salability of buildings or structures -- high efficiency furnaces (e.g., pulse combustion)?

Responses

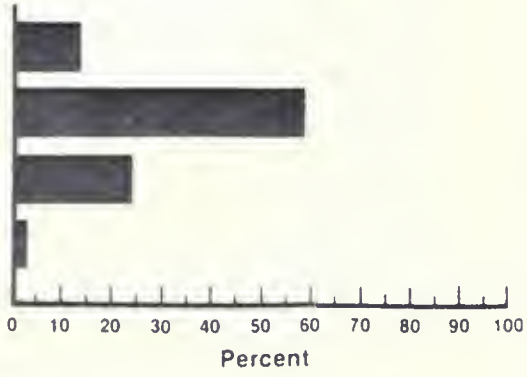
Choice of Answers	Number	Percent
GREAT DEAL	84	37.5
SOMEWHAT	110	49.1
NOT AT ALL	22	9.8
NO RESPONSE	8	3.6
	224	100.0



Q-40 To what extent do you feel the following building/design technique enhances the salability of buildings or structures -- double envelope construction?

Responses

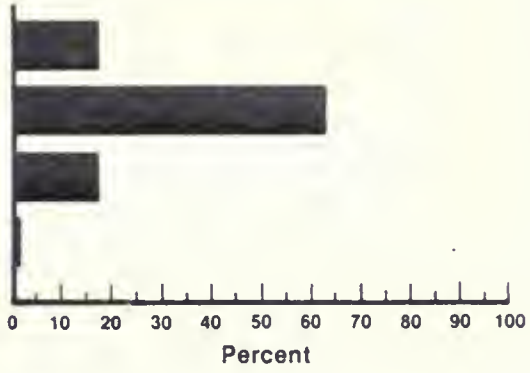
Choice of Answers	Number	Percent
GREAT DEAL	30	13.4
SOMEWHAT	133	59.4
NOT AT ALL	55	24.6
NO RESPONSE	6	2.7
	224	100.0



Q-41 To what extent do you feel the following building/design technique enhances the salability of buildings or structures -- air-to-air heat exchangers?

Responses

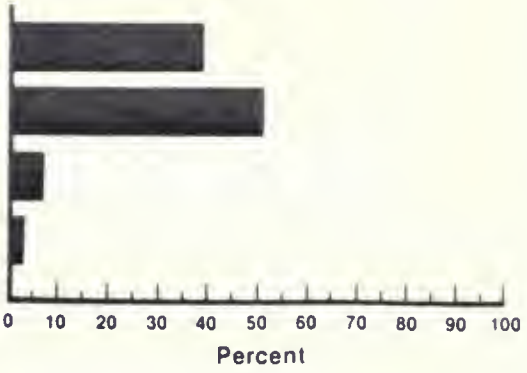
Choice of Answers	Number	Percent
GREAT DEAL	40	17.9
SOMEWHAT	142	63.4
NOT AT ALL	39	17.4
NO RESPONSE	3	1.3
	224	100.0



Q-42 To what extent do you feel the following building/design technique enhances the salability of buildings or structures -- energy efficient appliances?

Responses

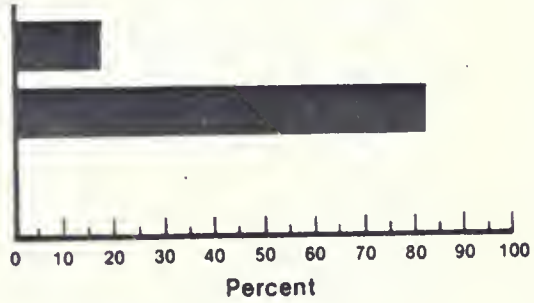
Choice of Answers	Number	Percent
GREAT DEAL	88	39.3
SOMEWHAT	113	50.4
NOT AT ALL	17	7.6
NO RESPONSE	6	2.7
	224	100.0



Q-43 Are you involved in marketing or selling the buildings or homes you build or design?

Responses

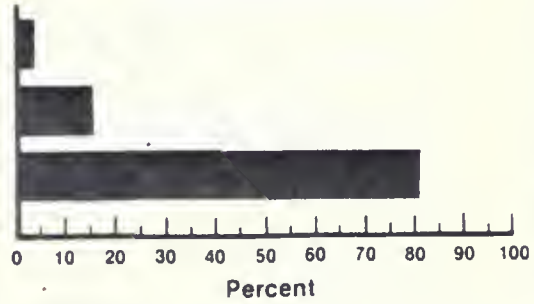
Choice of Answers	Number	Percent
YES	41	18.3
NO	183	81.7
NO RESPONSE	0	0.0
	224	100.0



Q-44 If YES, do you use super insulation (R-60+ ceiling, R-40 walls) as a selling point?

Responses

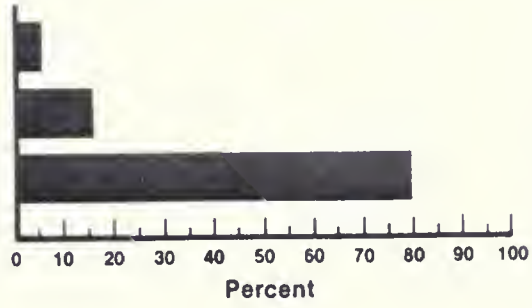
Choice of Answers	Number	Percent
YES	9	4.0
NO	35	15.6
NO RESPONSE	180	80.4
	224	100.0



Q-45 If YES, do you use active solar heating as a selling point?

Responses

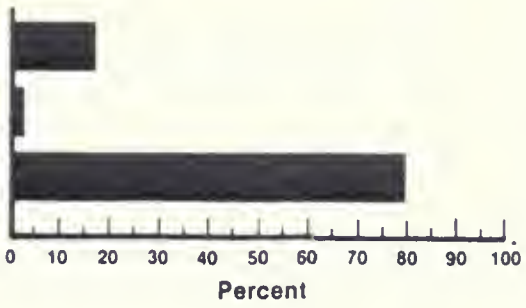
Choice of Answers	Number	Percent
YES	11	4.9
NO	34	15.2
NO RESPONSE	179	79.9
	224	100.0



Q-46 If YES, do you use passive solar heating as a selling point?

Responses

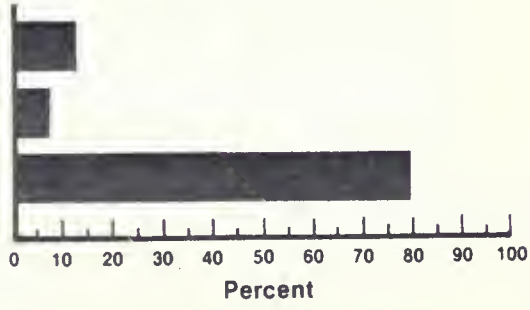
Choice of Answers	Number	Percent
YES	39	17.4
NO	6	2.7
NO RESPONSE	179	79.9
	224	100.0



Q-47 If YES, do you use solar greenhouses/sun spaces as a selling point?

Responses

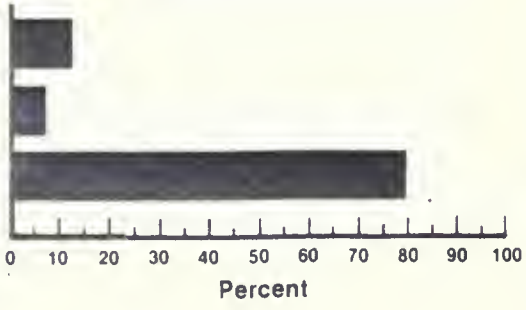
Choice of Answers	Number	Percent
YES	29	12.9
NO	16	7.1
NO RESPONSE	179	79.9
	224	100.0



Q-48 If YES, do you use earth sheltering as a selling point?

Responses

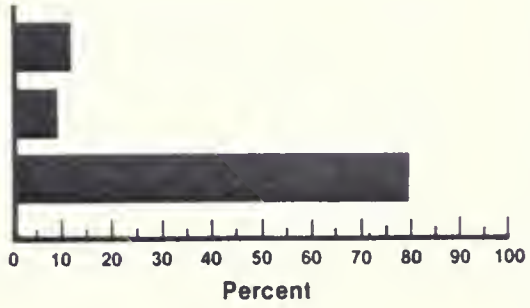
Choice of Answers	Number	Percent
YES	27	12.1
NO	18	8.0
NO RESPONSE	179	79.9
	224	100.0



Q-49 If YES, do you use triple pane windows as a selling point?

Responses

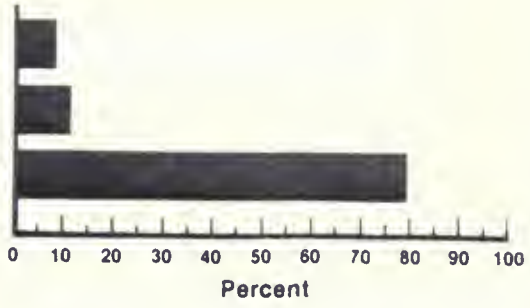
Choice of Answers	Number	Percent
YES	24	10.7
NO	21	9.4
NO RESPONSE	179	79.9
	224	100.0



Q-50 If YES, do you use high efficiency furnaces (e.g., pulse combustion) as a selling point?

Responses

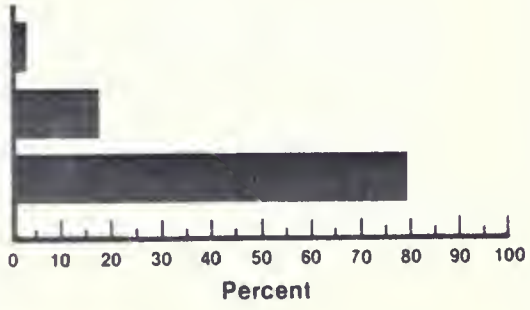
Choice of Answers	Number	Percent
YES	20	8.9
NO	25	11.2
NO RESPONSE	179	79.9
	224	100.0



Q-51 If YES, do you use double envelope construction as a selling point?

Responses

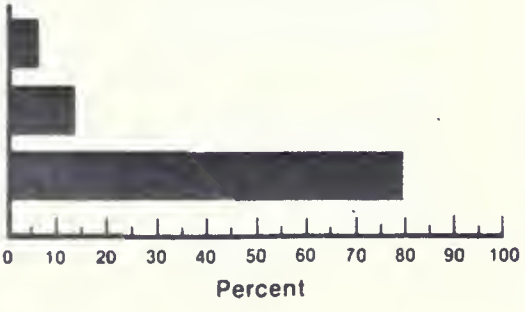
Choice of Answers	Number	Percent
YES	4	1.8
NO	41	18.3
NO RESPONSE	179	79.9
	224	100.0



Q-52 If YES, do you use air-to-air heat exchangers as a selling point?

Responses

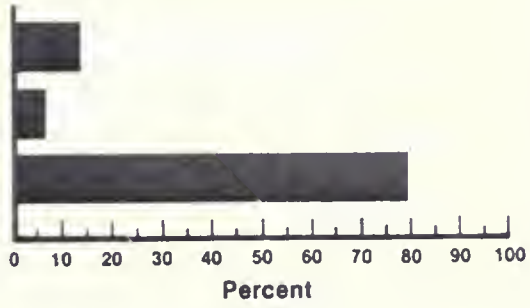
Choice of Answers	Number	Percent
YES	14	6.3
NO	31	13.8
NO RESPONSE	179	79.9
	224	100.0



Q-53 If YES, do you use energy efficient appliances as a selling point?

Responses

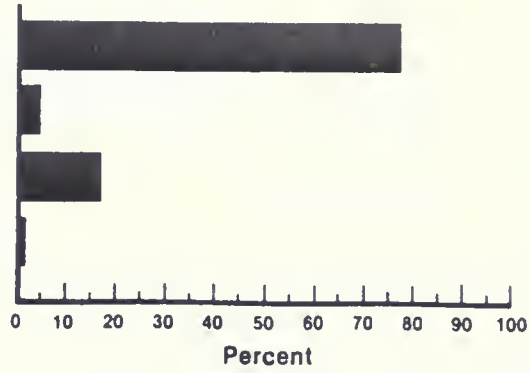
Choice of Answers	Number	Percent
YES	31	13.8
NO	14	6.3
NO RESPONSE	179	79.9
	224	100.0



Q-54 How much would you estimate the following building/design technique adds to the basic cost of a new structure -- insulation (R-38 ceiling, R-19 walls)?

Responses

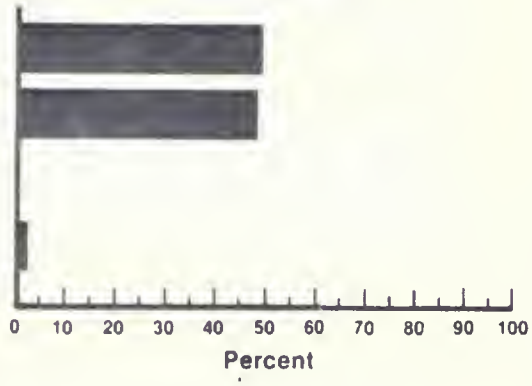
Choice of Answers	Number	Percent
0 - 9%	173	77.2
10 - 20%	11	4.9
NONE	38	17.0
NO RESPONSE	2	.9
	224	100.0



Q-55 How much would you estimate the following building/design technique adds to the basic cost of a new structure -- super insulation (R-60+ ceiling, R-40 walls)?

Responses

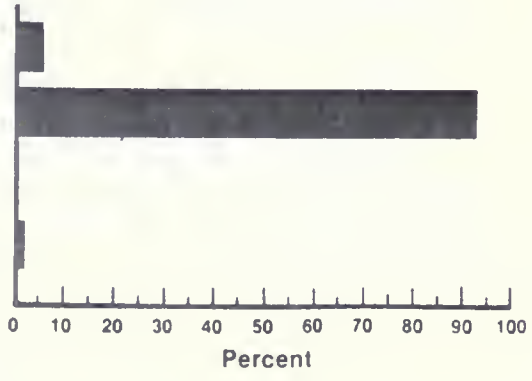
Choice of Answers	Number	Percent
0 - 9%	111	49.6
10 - 20%	109	48.7
NONE	0	0.0
NO RESPONSE	4	1.8
	224	100.0



Q-56 How much would you estimate the following building/design technique adds to the basic cost of a new structure -- active solar heating?

Responses

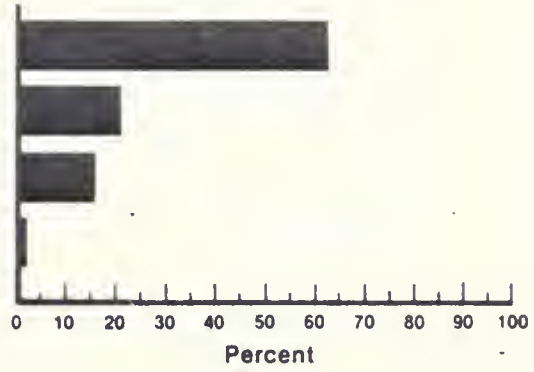
Choice of Answers	Number	Percent
0 - 9%	12	5.4
10 - 20%	208	92.9
NONE	0	0.0
NO RESPONSE	4	1.8
	224	100.0



Q-57 How much would you estimate the following building/design technique adds to the basic cost of a new structure -- passive solar heating?

Responses

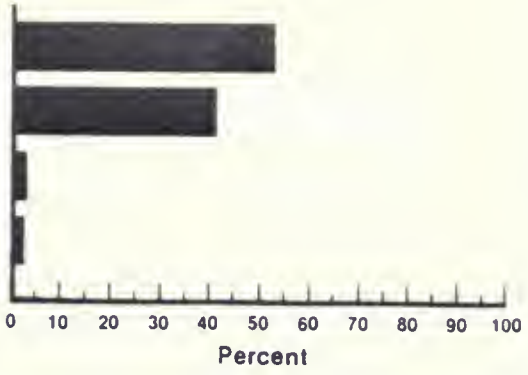
Choice of Answers	Number	Percent
0 - 9%	139	62.1
10 - 20%	47	21.0
NONE	35	15.6
NO RESPONSE	3	1.3
	224	100.0



Q-58 How much would you estimate the following building/design technique adds to the basic cost of a new structure -- solar greenhouses/sun spaces?

Responses

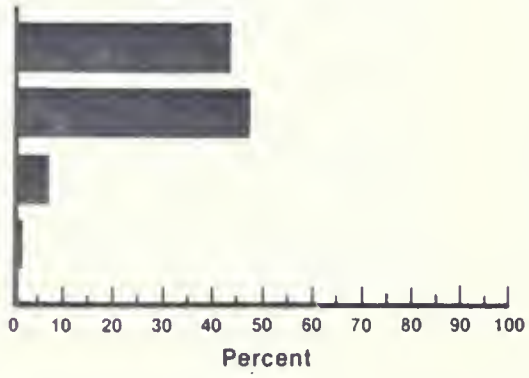
Choice of Answers	Number	Percent
0 - 9%	119	53.1
10 - 20%	93	41.5
NONE	7	3.1
NO RESPONSE	5	2.2
	224	100.0



Q-59 How much would you estimate the following building/design technique adds to the basic cost of a new structure -- earth sheltering?

Responses

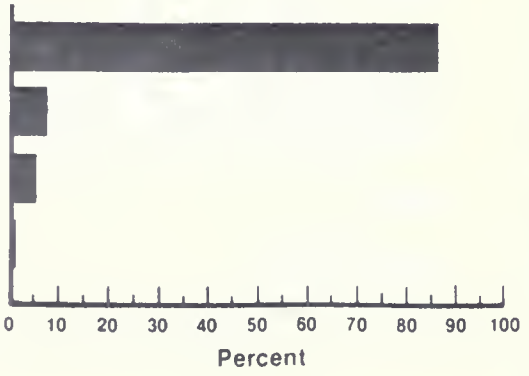
Choice of Answers	Number	Percent
0 - 9%	99	44.2
10 - 20%	106	47.3
NONE	17	7.6
NO RESPONSE	2	.9
	224	100.0



Q-60 How much would you estimate the following building/design technique adds to the basic cost of a new structure -- double or triple pane windows?

Responses

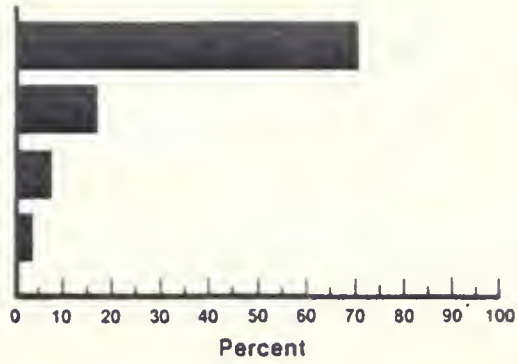
Choice of Answers	Number	Percent
0 - 9%	193	86.2
10 - 20%	18	8.0
NONE	12	5.4
NO RESPONSE	1	.4
	224	100.0



Q-61 How much would you estimate the following building/design technique adds to the basic cost of a new structure -- high efficiency furnaces (e.g., pulse combustion)?

Responses

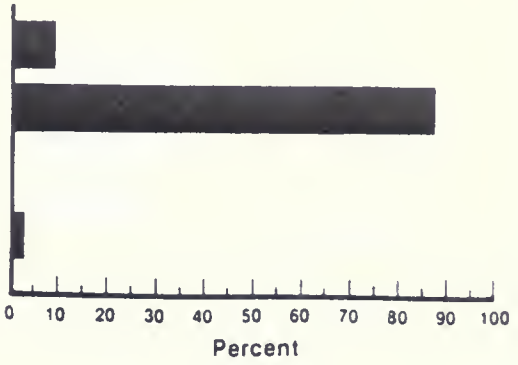
Choice of Answers	Number	Percent
0 - 9%	158	70.5
10 - 20%	38	17.0
NONE	19	8.5
NO RESPONSE	9	4.0
	224	100.0



Q-62 How much would you estimate the following building/design technique adds to the basic cost of a new structure -- double envelope construction?

Responses

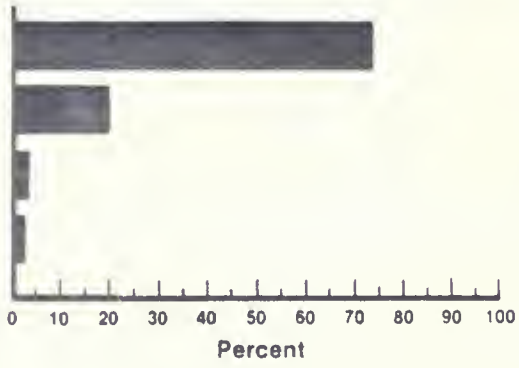
Choice of Answers	Number	Percent
0 - 9%	21	9.4
10 - 20%	196	87.5
NONE	0	0.0
NO RESPONSE	7	3.1
	224	100.0



Q-63 How much would you estimate the following building/design technique adds to the basic cost of a new structure -- air-to-air heat exchangers?

Responses

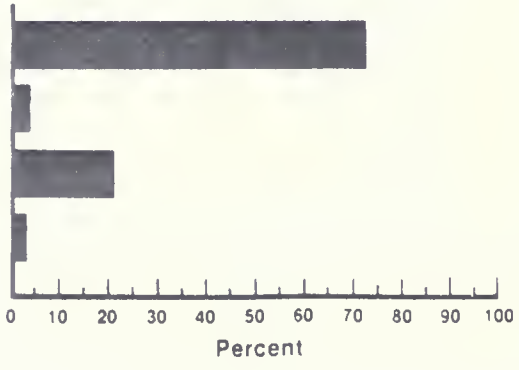
Choice of Answers	Number	Percent
0 - 9%	165	73.7
10 - 20%	45	20.1
NONE	8	3.6
NO RESPONSE	6	2.7
	224	100.0



Q-64 How much would you estimate the following building/design technique adds to the basic cost of a new structure -- energy efficient appliances?

Responses

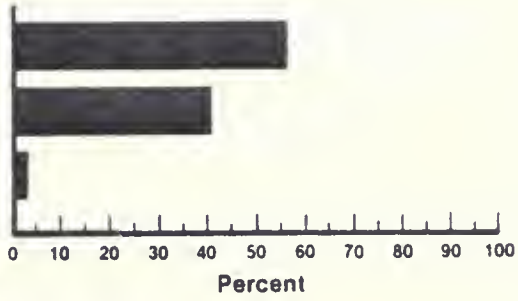
Choice of Answers	Number	Percent
0 - 9%	162	72.3
10 - 20%	8	3.6
NONE	47	21.0
NO RESPONSE	7	3.1
	224	100.0



Q-65 The State of Montana is considering the use of a home energy rating system similar to the EPA car mileage system. Would you support the adoption of such a rating system for new and existing homes?

Responses

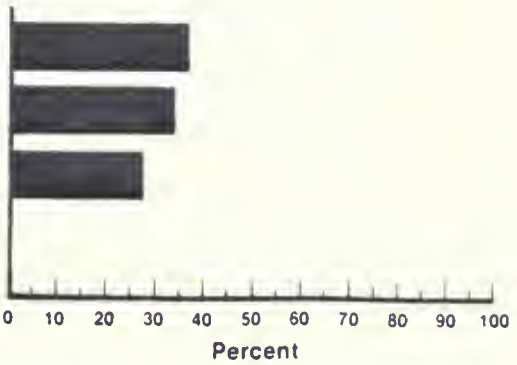
Choice of Answers	Number	Percent
YES	125	55.8
NO	91	40.6
NO RESPONSE	8	3.6
	224	100.0



Q-66 How many energy workshops or professional meetings dealing with energy conservation or renewable energy have you attended in the past year?

Responses

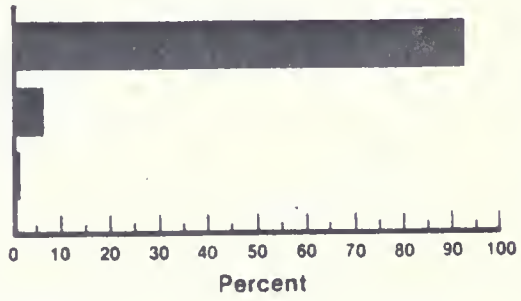
Choice of Answers	Number	Percent
MORE THAN ONE	84	37.5
ONE	77	34.4
NONE	63	28.1
NO RESPONSE	0	0.0
	224	100.0



Q-67 Would you be willing to attend workshops related to energy conservation or renewable energy if they were available in your area?

Responses

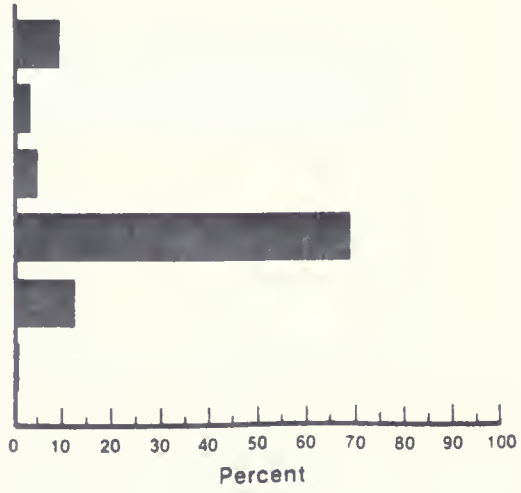
Choice of Answers	Number	Percent
YES	209	93.3
NO	13	5.8
NO RESPONSE	2	.9
	224	100.0



Q-68 Who do you feel should pay for these workshops?

Responses

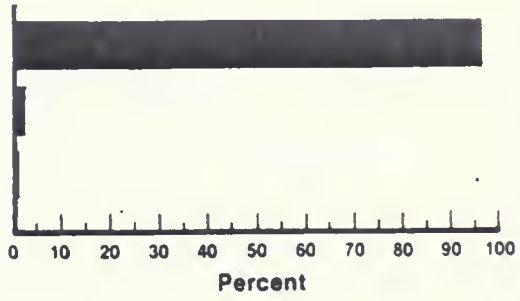
Choice of Answers	Number	Percent
STATE GOVERNMENT	22	9.8
FEDERAL GOVERNMENT	8	3.6
UTILITY COMPANIES	11	4.9
PARTICIPANTS	154	68.8
MULTIPLE RESPONSE	28	12.5
NO RESPONSE	1	.4
	224	100.0



Q-69 Have you found information on conservation or renewable energy from professional associations/publications?

Responses

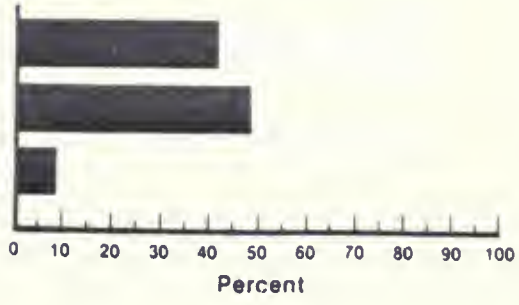
Choice of Answers	Number	Percent
YES	218	97.3
NO	5	2.2
NO RESPONSE	1	.4
	224	100.0



Q-70 Have you found information on conservation or renewable energy from the TV?

Responses

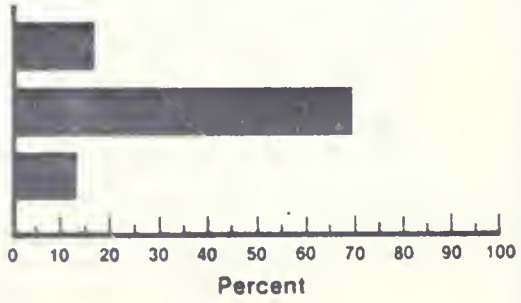
Choice of Answers	Number	Percent
YES	93	41.5
NO	110	49.1
NO RESPONSE	21	9.4
	224	100.0



Q-71 Have you found information on conservation or renewable energy from the radio?

Responses

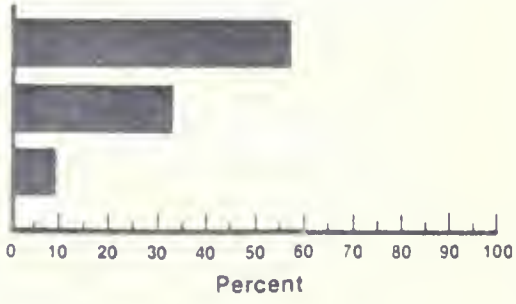
Choice of Answers	Number	Percent
YES	38	17.0
NO	156	69.6
NO RESPONSE	30	13.4
	224	100.0



Q-72 Have you found information on conservation or renewable energy from newspapers?

Responses

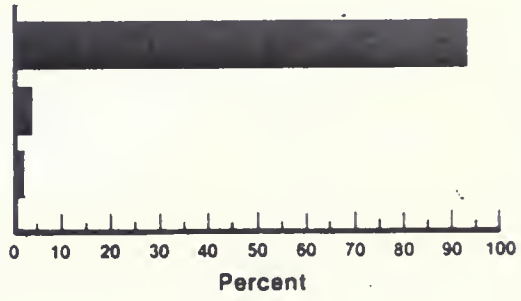
Choice of Answers	Number	Percent
YES	128	57.1
NO	74	33.0
NO RESPONSE	22	9.8
	224	100.0



Q-73 Have you found information on conservation or renewable energy from magazines?

Responses

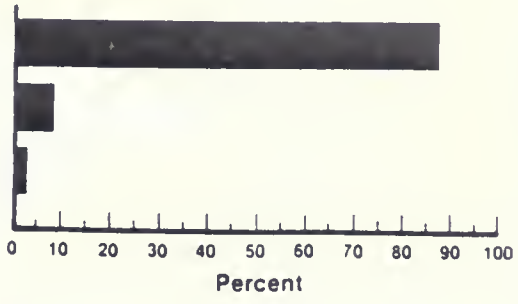
Choice of Answers	Number	Percent
YES	210	93.8
NO	9	4.0
NO RESPONSE	5	2.2
	224	100.0



Q-74 Have you found information on conservation or renewable energy from energy workshops?

Responses

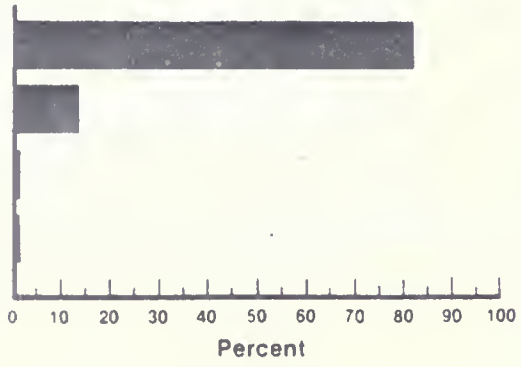
Choice of Answers	Number	Percent
YES	197	87.9
NO	20	8.9
NO RESPONSE	7	3.1
	224	100.0



Q-75 How helpful do you think professional associations/publications are in delivering information on energy conservation and renewable energy?

Responses

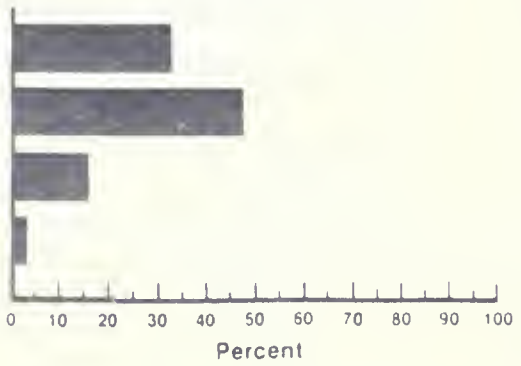
Choice of Answers	Number	Percent
VERY HELPFUL	187	83.5
SOMEWHAT HELPFUL	32	14.3
NOT HELPFUL	2	.9
NO RESPONSE	3	1.3
	224	100.0



Q-76 How helpful to you think the television is in delivering information on energy conservation and renewable energy?

Responses

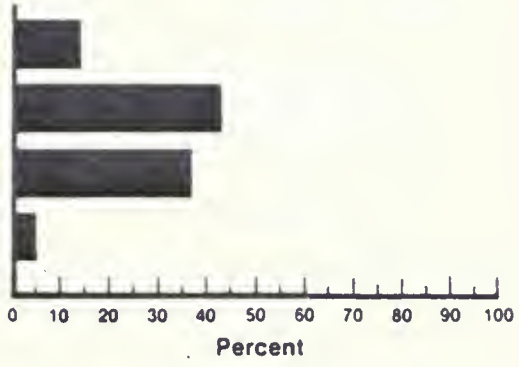
Choice of Answers	Number	Percent
VERY HELPFUL	73	32.6
SOMEWHAT HELPFUL	108	48.2
NOT HELPFUL	36	16.1
NO RESPONSE	7	3.1
	224	100.0



Q-77 How helpful do you think the radio is in delivering information on energy conservation and renewable energy?

Responses

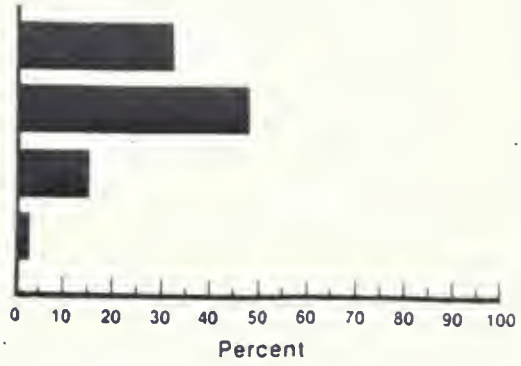
Choice of Answers	Number	Percent
VERY HELPFUL	33	14.7
SOMEWHAT HELPFUL	98	43.8
NOT HELPFUL	82	36.6
NO RESPONSE	11	4.9
	224	100.0



Q-78 How helpful do you think the newspapers are in delivering information on energy conservation and renewable energy?

Responses

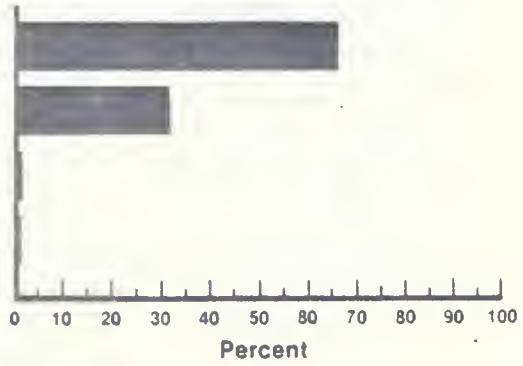
Choice of Answers	Number	Percent
VERY HELPFUL	75	33.5
SOMEWHAT HELPFUL	108	48.2
NOT HELPFUL	34	15.2
NO RESPONSE	7	3.1
	224	100.0



Q-79 How helpful do you think magazines are in delivering information on energy conservation and renewable energy?

Responses

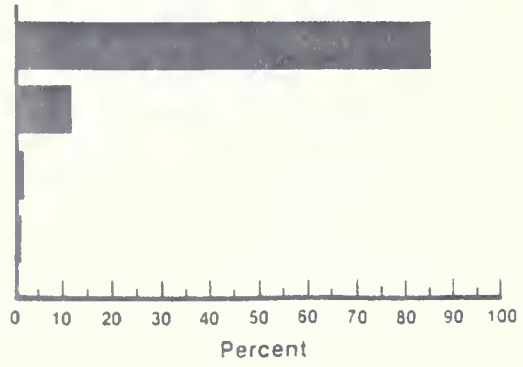
Choice of Answers	Number	Percent
VERY HELPFUL	149	66.5
SOMEWHAT HELPFUL	70	31.3
NOT HELPFUL	3	1.3
NO RESPONSE	2	.9
	224	100.0



Q-80 How helpful do you think energy workshops are in delivering information on energy conservation and renewable energy?

Responses

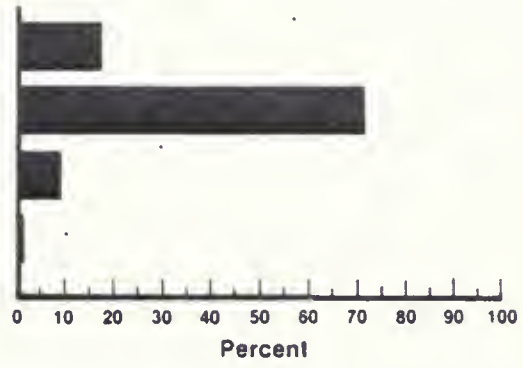
Choice of Answers	Number	Percent
VERY HELPFUL	192	85.7
SOMEWHAT HELPFUL	26	11.6
NOT HELPFUL	4	1.8
NO RESPONSE	2	.9
	224	100.0



Q-81 What type of buildings do you primarily build or design?

Responses

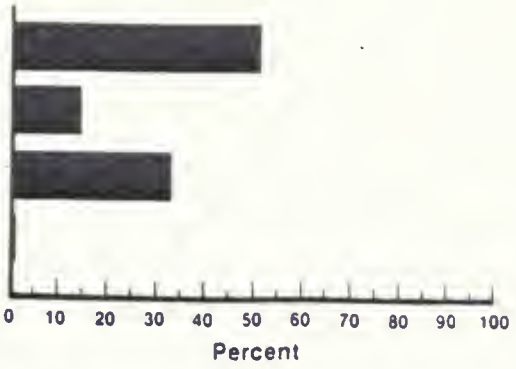
Choice of Answers	Number	Percent
RESIDENTIAL	40	17.9
COMMERCIAL	160	71.4
RESIDENTIAL & COMMERCIAL	21	9.4
NO RESPONSE	3	1.3
	224	100.0



Q-82 How many employees does your firm employ?

Responses

Choice of Answers	Number	Percent
LESS THAN 5	113	50.4
6 TO 9	34	15.2
10 OR MORE	75	33.5
NO RESPONSE	2	.9
	224	100.0



SUMMARY OF RESULTS

ENERGY OUTREACH SURVEY

LENDERS

Nearly 60% of the lenders indicated that they thought super insulation would result in at least a 25% energy consumption savings. This opinion is backed up by the 90% of the lenders that would provide financial support for those dwellings constructed with super insulation. Similarly, 50% of the lenders felt that active solar heating would provide an energy savings of at least 25%, and 70% of the lenders indicated a willingness to loan money on either active or passive solar heating.

Generally, the respondents from the banks, savings and loans, and credit unions were somewhat familiar with utility company loan programs and viewed these programs as only marginally successful in contributing to reduced residential energy costs. The lenders also indicated only a mild familiarity with federal energy tax credits to homeowners and very little knowledge of federal energy tax credits to financial institutions. Based on these responses, it would appear that Montana lenders, and consequently borrowers, are taking very little advantage of federal energy tax credits. In a similar fashion, the lenders indicated that state and federal energy tax credits have had a fairly small effect on energy conservation.

Lenders endorsed the adoption of a home energy rating system by almost the same proportions as did architects and builders. This endorsement by 55% of the respondents would indicate that such a rating system would be widely accepted by the furnishers of residential dwellings.

Approximately 80% of the lenders indicated that they find their information on conservation and renewable energy from television, newspapers and magazines. They also rated the information from these sources as being the most useful way to deliver energy information.

Very few of the lenders have attended any workshops or meetings dealing with energy conservation during the past year as over 80% had not attended any such event. They did, however, express a strong interest as 83% were willing to attend such workshops and the majority were willing to pay for these workshops.

Overall, the lenders differ very little from the general public in their conceptions of energy conservation. They have, however, expressed a strong willingness to provide financial support for energy efficient technology used in residential construction.

Montana
Credit Unions League
1236 Helena Avenue ■ Helena, Montana 59601 ■ Phone: 406-442-9081

January 12, 1983

Dear Friend:

The Montana Department of Natural Resources and Conservation (DNRC) is conduoting a survey to assist in targeting its information, eduoation, and outreaoh activities for renewable energy and energy conservation. Your buaineaa has been randomly selected to be part of this survey.

I encourage you to take a few minutes to complete the attached questionnaire since, in the end, we all stand to benefit from the improved delivery of government services.

Please accept my personal appreciation for your cooperation with this worthwhile project.

Sincerely,

Herbert Walberg, Jr.
President

Attachment

Montana·Savings
and·Loan·League

January 12, 1983

Dear Friend:

The Montana Department of Natural Resources and Conservation (DNRC) is conducting a survey to assist in targeting its information, education, and outreach activities for renewable energy and energy conservation. Montana Savings and Loans have been randomly selected to be part of this survey.

Please complete the attached questionnaire. Thank you for your cooperation with this worthwhile project.

Sincerely,

Robert W. Hoene
Secretary-Treasurer
Montana Savings and
Loan League

Post Office Box 503
Helena Montana 59624
406/442-3961

OFFICE OF THE
PRESIDENT
ERLE C. GROSS

January 12, 1983

Dear Banker:

The Montana Department of Natural Resources and Conservation (DNRC) is conducting a survey to assist in targeting its information, education, and outreach activities for renewable energy and energy conservation. Your business has been randomly selected to be part of this survey.

As citizens and taxpayers, I feel each of us has an obligation to assist our government in improving the services it provides to us. I encourage you to take a few minutes to complete the attached questionnaire since, in the end, we stand to be the beneficiary of the improved delivery of government services.

Please accept my personal appreciation for you cooperation with this worthwhile project.

Sincerely yours,

Erle C. Gross
President

Arcade Bldg. • Suite 4H • Helena, Montana 59601 • Phone: 406/443-4121

ENERGY OUTREACH SURVEY
LENDERS

INSTRUCTIONS: Please put an "X" in the appropriate box for each question.

Q-1 What percentage of energy consumption on a new home do you think you would save as a result of taking the following measures?

	MORE THAN 25% (1)	LESS THAN 25% (2)	NONE (3)	
1) SUPER INSULATION (R-60 + CEILING, R-40 WALLS)	☐	☐	☐	(1)
2) PASSIVE SOLAR HEATING	☐	☐	☐	(2)
3) ACTIVE SOLAR HEATING	☐	☐	☐	(3)

Q-2 Would you lend money on the following energy conservation measures?

	YES (1)	NO (2)	
1) SUPER INSULATION (R-60 + CEILING, R-40 WALLS)	☐	☐	(4)
2) PASSIVE SOLAR HEATING	☐	☐	(5)
3) ACTIVE SOLAR HEATING	☐	☐	(6)

Q-3 How would you rate your knowledge of the utility companies' loan programs for financing residential energy conservation and renewable energy installations?

1) VERY FAMILIAR ☐1

2) SOMEWHAT FAMILIAR ☐2 (7)

3) NOT FAMILIAR ☐3

Q-4 To what extent do you think the utility companies' loan programs have contributed to residential energy conservation and renewable energy usage?

1) GREAT DEAL ☐1
2) SOMEWHAT ☐2 (8)
3) NOT AT ALL ☐3

Q-5 How would you rate your knowledge of the following state and federal residential tax programs to conserve energy?

	VERY FAMILIAR 1	SOMEWHAT FAMILIAR 2	NOT FAMILIAR 3	
1) FEDERAL ENERGY TAX CREDITS (TO HOMEOWNERS)	☐	☐	☐	(9)
2) FEDERAL ENERGY TAX CREDITS (TO FINANCIAL INSTITUTIONS)	☐	☐	☐	(10)
3) STATE ENERGY TAX CREDITS	☐	☐	☐	(11)
4) STATE PROPERTY TAX EXEMPTIONS	☐	☐	☐	(12)

Q-6 To what extent do you think the following state and federal tax programs have contributed to energy conservation and renewable energy?

	GREAT DEAL 1	SOMEWHAT 2	NOT AT ALL 3	
1) FEDERAL ENERGY TAX CREDITS (TO HOMEOWNERS)	☐	☐	☐	(13)
2) FEDERAL ENERGY TAX CREDITS (TO FINANCIAL INSTITUTIONS)	☐	☐	☐	(14)
3) STATE ENERGY TAX CREDITS	☐	☐	☐	(15)
4) STATE PROPERTY TAX EXEMPTIONS	☐	☐	☐	(16)

Q-7 The State of Montana is considering the use of a home energy rating system similar to the EPA car mileage system. Would you support the adoption of such a rating system for new and existing homes?

1) YES ☐1
2) NO ☐2 (17)

Q-8 Have you found information on energy conservation or renewable energy from any of the following sources?

		YES 1	NO 2	
1)	PROFESSIONAL ASSOCIATIONS/ PUBLICATIONS	☐	☐	(18)
2)	TV	☐	☐	(19)
3)	RADIO	☐	☐	(20)
4)	NEWSPAPERS	☐	☐	(21)
5)	MAGAZINES	☐	☐	(22)
6)	ENERGY WORKSHOPS	☐	☐	(23)

Q-9 Which of the following sources do you think could best be used to deliver information on energy conservation and renewable energy?

		VERY HELPFUL 1	SOMEWHAT HELPFUL 2	NOT HELPFUL 3	
1)	PROFESSIONAL ASSOCIATIONS/ PUBLICATIONS	☐	☐	☐	(24)
2)	TV	☐	☐	☐	(25)
3)	RADIO	☐	☐	☐	(26)
4)	NEWSPAPERS	☐	☐	☐	(27)
5)	MAGAZINES	☐	☐	☐	(28)
6)	ENERGY WORKSHOPS	☐	☐	☐	(29)

Q-10 How many workshops or professional meetings dealing with energy conservation or renewable energy have you attended in the past year?

1)	MORE THAN ONE	☐1	
2)	ONE	☐2	(30)
3)	NONE	☐3	

Q-11 Would you be willing to attend workshops related to your profession on energy conservation or renewable energy if they were available in your area?

1) YES ☐1

2) NO ☐2 (31)

Q-12 Who do you feel should pay for these workshops?

1) STATE GOVERNMENT ☐1

2) FEDERAL GOVERNMENT ☐2

3) UTILITY COMPANIES ☐3 (32)

4) PARTICIPANTS ☐4

Q-13 How many employees does your firm employ?

1) LESS THAN 5 ☐1

2) 6 TO 9 ☐2 (33)

3) 10 AND MORE ☐3

Q-14 Which best describes your current position in your firm?

1) PARTNER ☐1

2) OWNER ☐2 (34)

3) EMPLOYEE ☐3

Is there anything else you would like to tell us that would assist us in delivering energy conservation and renewable energy information? If so, please use this space for that purpose.

Your contribution to this effort is greatly appreciated. If you would like a summary of results, please print your name and address on the back of the return envelope (NOT on this questionnaire), and we will mail you a copy.

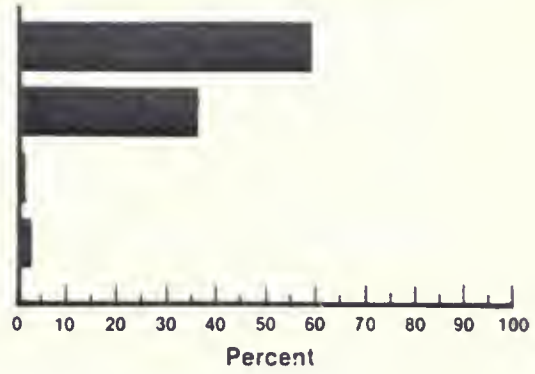
SURVEY HISTOGRAMS

ENERGY OUTREACH SURVEY
LENDERS

Q-1 What percentage of energy consumption on a new home do you think you would save as a result of taking the following measure -- super insulation (R-60+ ceiling, R-40 walls)?

Responses

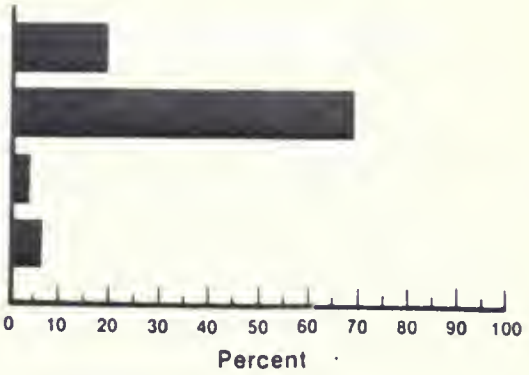
Choice of Answers	Number	Percent
MORE THAN 25%	206	59.4
LESS THAN 25%	123	35.4
NONE	7	2.0
NO RESPONSE	11	3.2
	347	100.0



Q-2 What percentage of energy consumption on a new home do you think you would save as a result of taking the following measure -- passive solar heating?

Responses

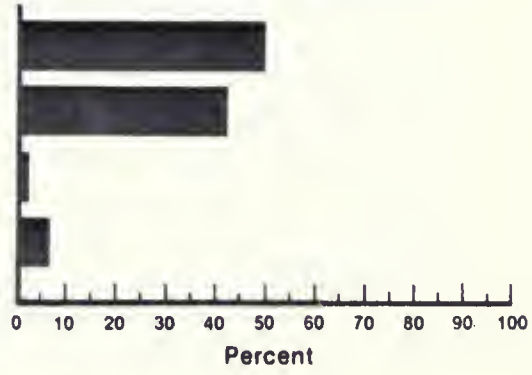
Choice of Answers	Number	Percent
MORE THAN 25%	69	19.9
LESS THAN 25%	239	68.9
NONE	15	4.3
NO RESPONSE	24	6.9
	347	100.0



Q-3 What percentage of energy consumption on a new home do you think you would save as a result of taking the following measure -- active solar heating?

Responses

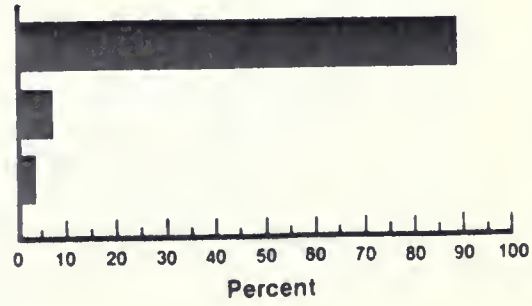
Choice of Answers	Number	Percent
MORE THAN 25%	172	49.6
LESS THAN 25%	145	41.8
NONE	7	2.0
NO RESPONSE	23	6.6
	347	100.0



Q-4 Would you lend money on the following energy conservation measure -- super insulation (R-60+ ceiling, R-40 walls)?

Responses

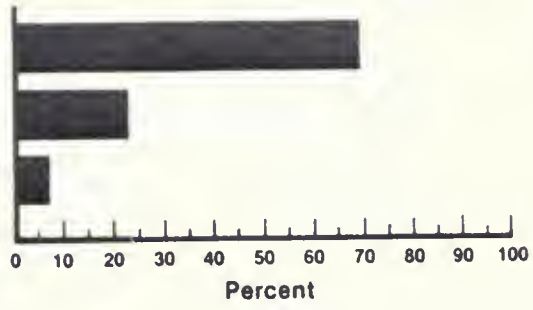
Choice of Answers	Number	Percent
YES	310	89.3
NO	24	6.9
NO RESPONSE	13	3.7
	347	100.0



Q-5 Would you lend money on the following energy conservation measure -- passive solar heating?

Responses

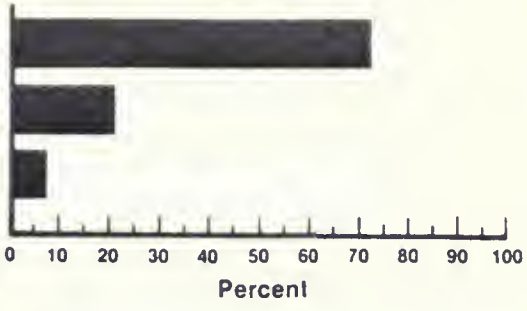
Choice of Answers	Number	Percent
YES	242	69.7
NO	80	23.1
NO RESPONSE	25	7.2
	347	100.0



Q-6 Would you lend money on the following energy conservation measure -- active solar heating?

Responses

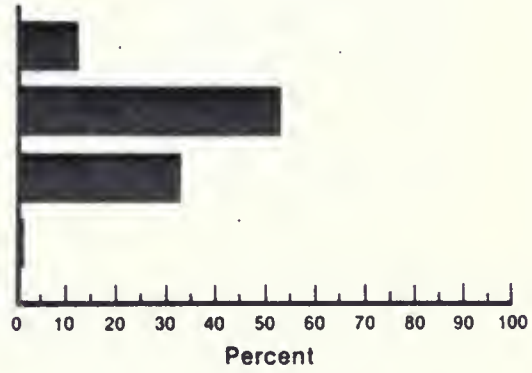
Choice of Answers	Number	Percent
YES	249	71.8
NO	71	20.5
NO RESPONSE	27	7.8
	347	100.0



Q-7 How would you rate your knowledge of the utility companies' loan programs for financing residential energy conservation and renewable energy installations?

Responses

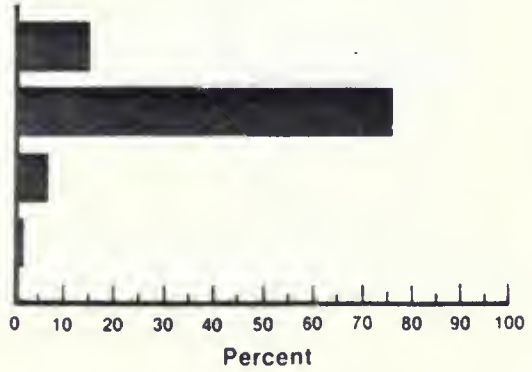
Choice of Answers	Number	Percent
VERY FAMILIAR	43	12.4
SOMEWHAT FAMILIAR	186	53.6
NOT FAMILIAR	115	33.1
NO RESPONSE	3	.9
	347	100.0



Q-8 To what extent do you think the utility companies' loan programs have contributed to residential energy conservation and renewable energy usage?

Responses

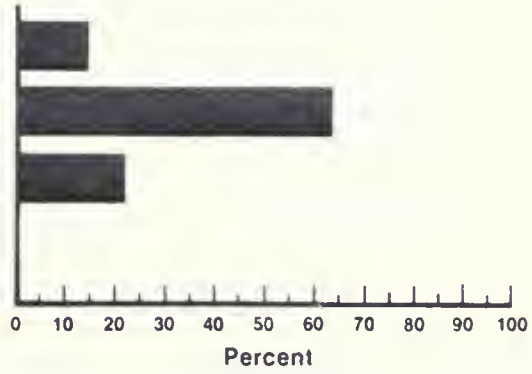
Choice of Answers	Number	Percent
GREAT DEAL	52	15.0
SOMEWHAT	266	76.7
NOT AT ALL	24	6.9
NO RESPONSE	5	1.4
	347	100.0



Q-9 How would you rate your knowledge of the following federal residential tax program to conserve energy -- federal energy tax credits (to homeowners)?

Responses

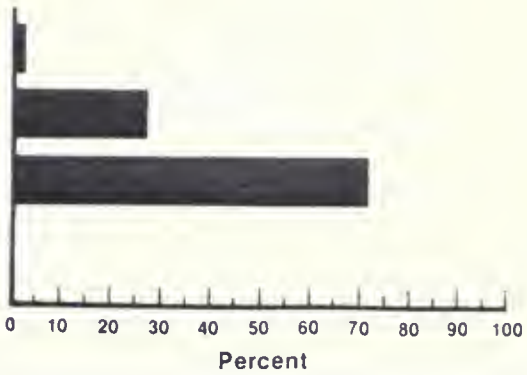
Choice of Answers	Number	Percent
VERY FAMILIAR	51	14.7
SOMEWHAT FAMILIAR	219	63.1
NOT FAMILIAR	77	22.2
NO RESPONSE	0	0.0
	347	100.0



Q-10 How would you rate your knowledge of the following federal residential tax program to conserve energy -- federal energy tax credits (to financial institutions)?

Responses

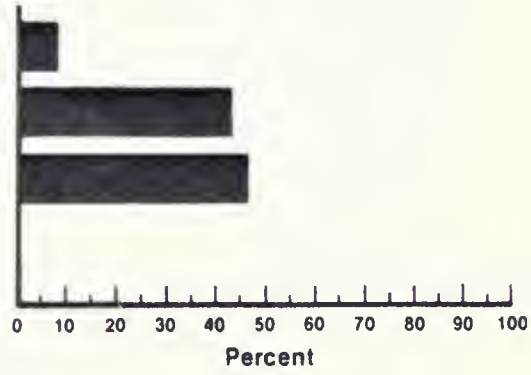
Choice of Answers	Number	Percent
VERY FAMILIAR	8	2.3
SOMEWHAT FAMILIAR	93	26.8
NOT FAMILIAR	246	70.9
NO RESPONSE	0	0.0
	347	100.0



Q-11 How would you rate your knowledge of the following state residential tax program to conserve energy -- state energy tax credits?

Responses

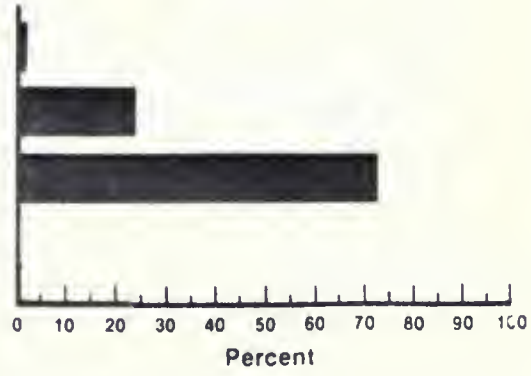
Choice of Answers	Number	Percent
VERY FAMILIAR	31	8.9
SOMEWHAT FAMILIAR	153	44.1
NOT FAMILIAR	163	47.0
NO RESPONSE	0	0.0
	347	100.0



Q-12 How would you rate your knowledge of the following state residential tax program to conserve energy -- state property tax exemptions?

Responses

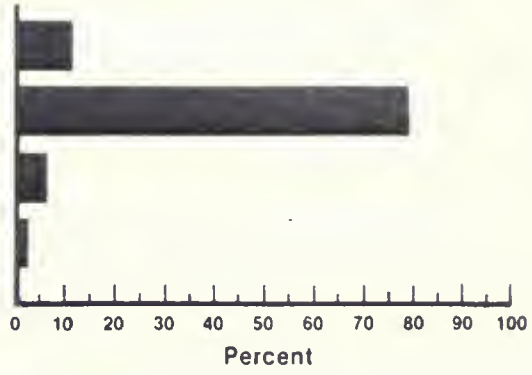
Choice of Answers	Number	Percent
VERY FAMILIAR	8	2.3
SOMEWHAT FAMILIAR	86	24.8
NOT FAMILIAR	253	72.9
NO RESPONSE	0	0.0
	347	100.0



Q-13 To what extent do you think the following federal tax program has contributed to energy conservation and renewable energy -- federal energy tax credits (to homeowners)?

Responses

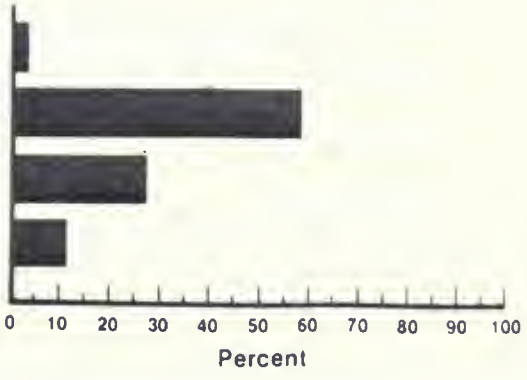
Choice of Answers	Number	Percent
GREAT DEAL	41	11.8
SOMEWHAT	275	79.3
NOT AT ALL	21	6.1
NO RESPONSE	10	2.9
	347	100.0



Q-14 To what extent do you think the following federal tax program has contributed to energy conservation and renewable energy -- federal energy tax credits (to financial institutions)?

Responses

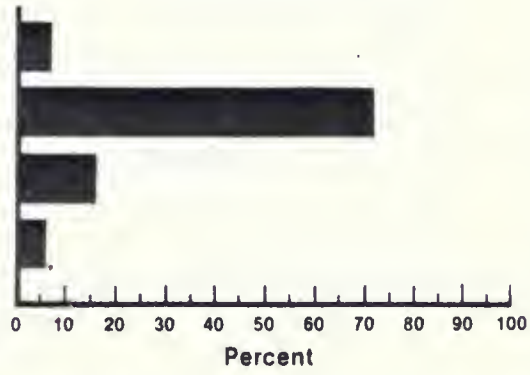
Choice of Answers	Number	Percent
GREAT DEAL	10	2.9
SOMEWHAT	204	58.8
NOT AT ALL	95	27.4
NO RESPONSE	38	11.0
	347	100.0



Q-15 To what extent do you think the following state tax program has contributed to energy conservation and renewable energy -- state energy tax credits?

Responses

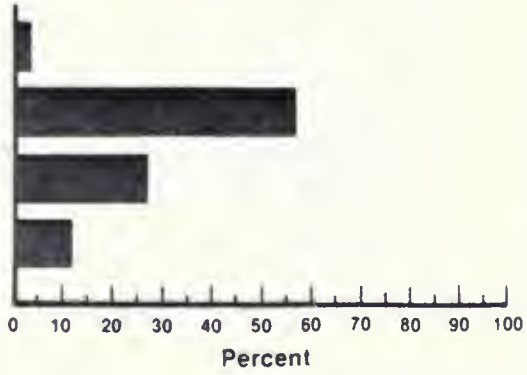
Choice of Answers	Number	Percent
GREAT DEAL	24	6.9
SOMEWHAT	246	70.9
NOT AT ALL	55	15.9
NO RESPONSE	22	6.3
	347	100.0



Q-16 To what extent do you think the following state tax program has contributed to energy conservation and renewable energy -- state property tax exemptions?

Responses

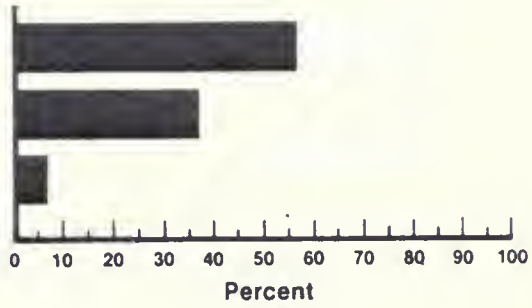
Choice of Answers	Number	Percent
GREAT DEAL	13	3.7
SOMEWHAT	198	57.1
NOT AT ALL	95	27.4
NO RESPONSE	41	11.8
	347	100.0



Q-17 The State of Montana is considering the use of a home energy rating system similar to the EPA car mileage system. Would you support the adoption of such a rating system for new and existing homes?

Responses

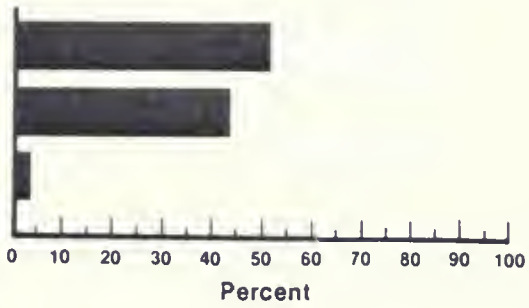
Choice of Answers	Number	Percent
YES	194	55.9
NO	131	37.8
NO RESPONSE	22	6.3
	347	100.0



Q-18 Have you found information on conservation or renewable energy from professional associations/publications?

Responses

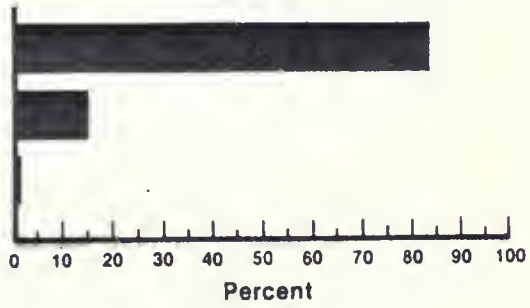
Choice of Answers	Number	Percent
YES	177	51.0
NO	155	44.7
NO RESPONSE	15	4.3
	347	100.0



Q-19 Have you found information on conservation or renewable energy from the TV?

Responses

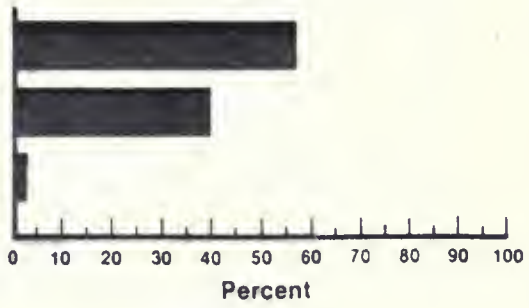
Choice of Answers	Number	Percent
YES	292	84.1
NO	52	15.0
NO RESPONSE	3	.9
	347	100.0



Q-20 Have you found information on conservation or renewable energy from the radio?

Responses

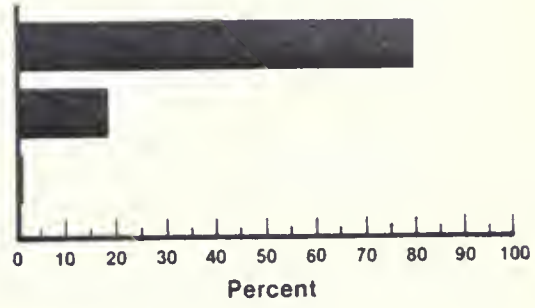
Choice of Answers	Number	Percent
YES	200	57.6
NO	139	40.1
NO RESPONSE	8	2.3
	347	100.0



Q-21 Have you found information on conservation or renewable energy from newspapers?

Responses

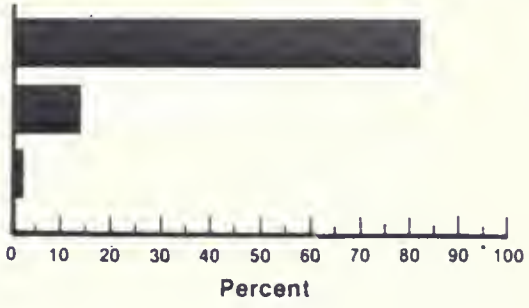
Choice of Answers	Number	Percent
YES	277	79.8
NO	65	18.7
NO RESPONSE	5	1.4
	347	100.0



Q-22 Have you found information on conservation or renewable energy from magazines?

Responses

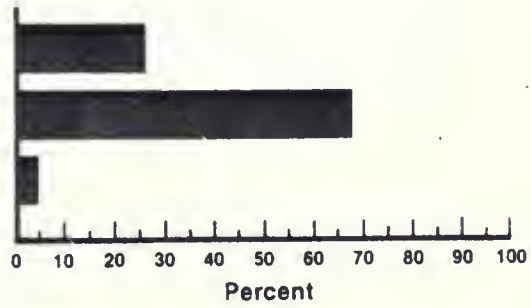
Choice of Answers	Number	Percent
YES	287	82.7
NO	51	14.7
NO RESPONSE	9	2.6
	347	100.0



Q-23 Have you found information on conservation or renewable energy from energy workshops?

Responses

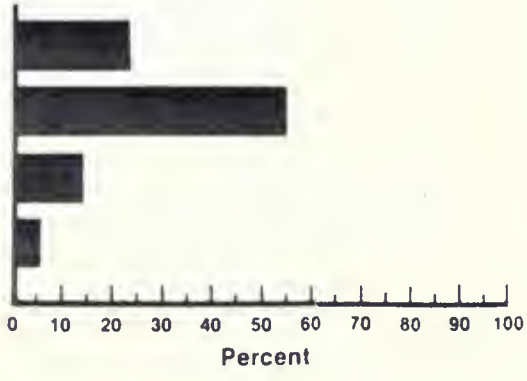
Choice of Answers	Number	Percent
YES	92	26.5
NO	238	68.6
NO RESPONSE	17	4.9
	347	100.0



Q-24 How helpful do you think professional associations /publications are in delivering information on energy conservation and renewable energy?

Responses

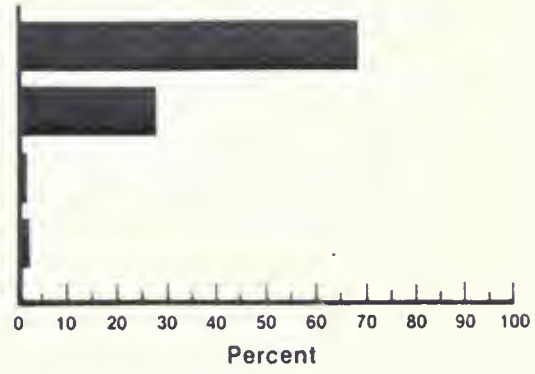
Choice of Answers	Number	Percent
VERY HELPFUL	85	24.5
SOMEWHAT HELPFUL	192	55.3
NOT HELPFUL	51	14.7
NO RESPONSE	19	5.5
	347	100.0



Q-25 How helpful do you think the TV is in delivering information on energy conservation and renewable energy?

Responses

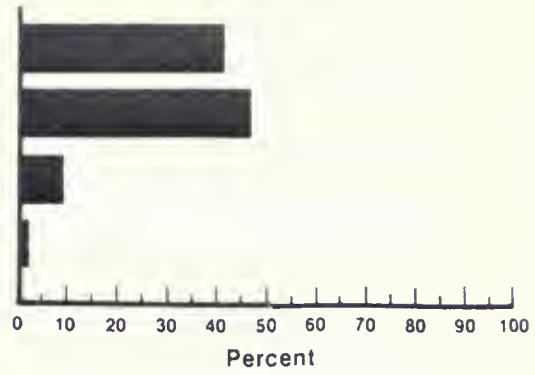
Choice of Answers	Number	Percent
VERY HELPFUL	239	68.9
SOMEWHAT HELPFUL	98	28.2
NOT HELPFUL	4	1.2
NO RESPONSE	6	1.7
	347	100.0



Q-26 How helpful do you think the radio is in delivering information on energy conservation and renewable energy?

Responses

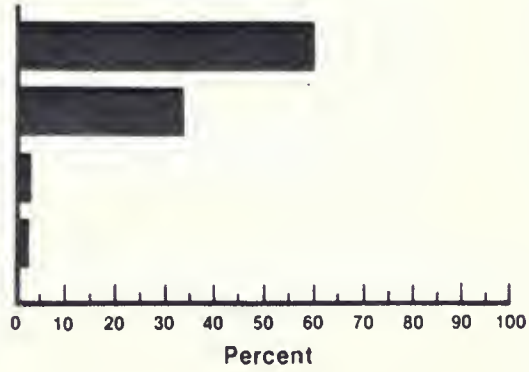
Choice of Answers	Number	Percent
VERY HELPFUL	143	41.2
SOMEWHAT HELPFUL	163	47.0
NOT HELPFUL	33	9.5
NO RESPONSE	8	2.3
	347	100.0



Q-27 How helpful do you think the newspapers are in delivering information on energy conservation and renewable energy?

Responses

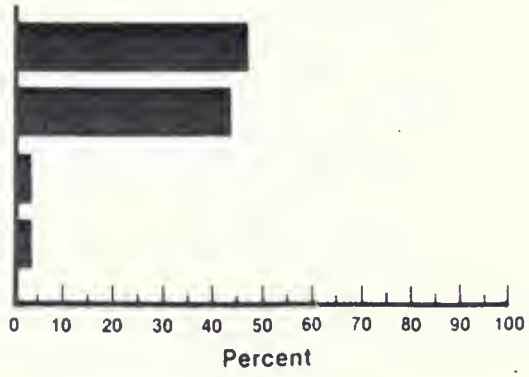
Choice of Answers	Number	Percent
VERY HELPFUL	209	60.2
SOMEWHAT HELPFUL	120	34.6
NOT HELPFUL	10	2.9
NO RESPONSE	8	2.3
	347	100.0



Q-28 How helpful do you think magazines are in delivering information on energy conservation and renewable energy?

Responses

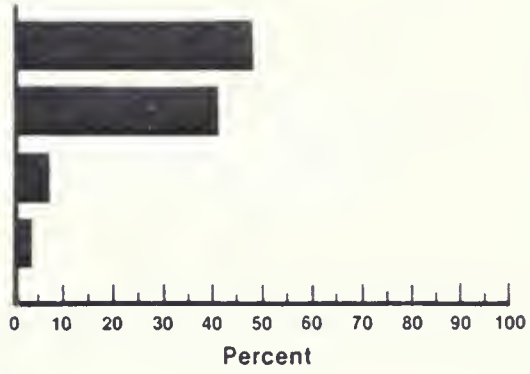
Choice of Answers	Number	Percent
VERY HELPFUL	165	47.6
SOMEWHAT HELPFUL	155	44.7
NOT HELPFUL	13	3.7
NO RESPONSE	14	4.0
	347	100.0



Q-29 How helpful do you think energy workshops are in delivering information on energy conservation and renewable energy?

Responses

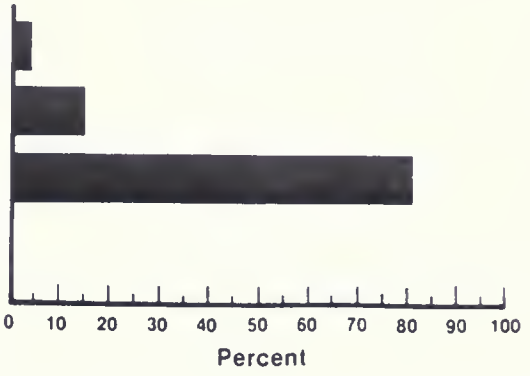
Choice of Answers	Number	Percent
VERY HELPFUL	169	48.7
SOMEWHAT HELPFUL	141	40.6
NOT HELPFUL	23	6.6
NO RESPONSE	14	4.0
	347	100.0



Q-30 How many workshops or professional meetings dealing with energy conservation or renewable energy have you attended in the past year?

Responses

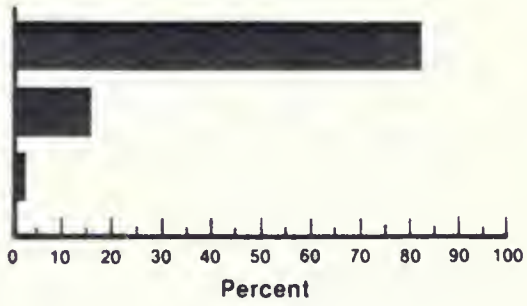
Choice of Answers	Number	Percent
MORE THAN ONE	16	4.6
ONE	52	15.0
NONE	279	80.4
NO RESPONSE	0	0.0
	347	100.0



Q-31 Would you be willing to attend workshops related to your profession on energy conservation or renewable energy if they were available in your area?

Responses

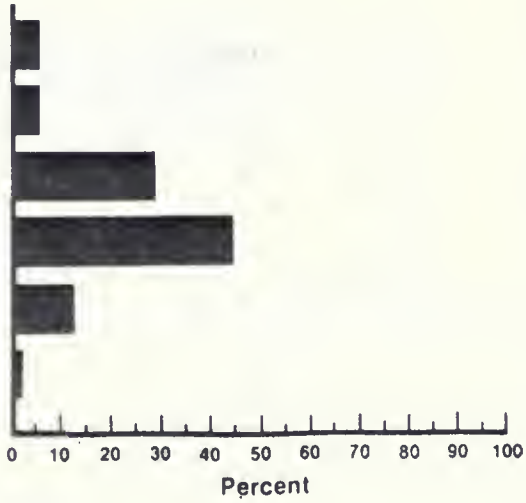
Choice of Answers	Number	Percent
YES	287	82.7
NO	53	15.3
NO RESPONSE	7	2.0
	347	100.0



Q-32 Who do you feel should pay for these workshops?

Responses

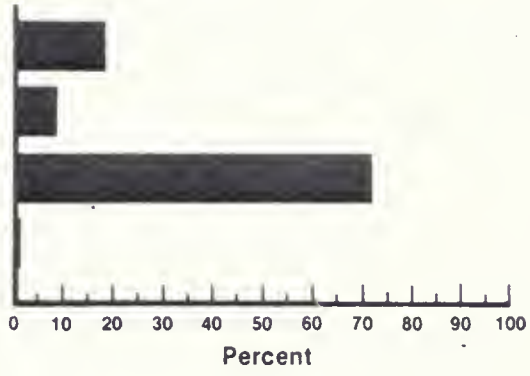
Choice of Answers	Number	Percent
STATE GOVERNMENT	17	4.9
FEDERAL GOVERNMENT	18	5.2
UTILITY COMPANIES	103	29.7
PARTICIPANTS	157	45.2
MULTIPLE RESPONSE	45	13.0
NO RESPONSE	7	2.0
	347	100.0



Q-33 How many employees does your firm employ?

Responses

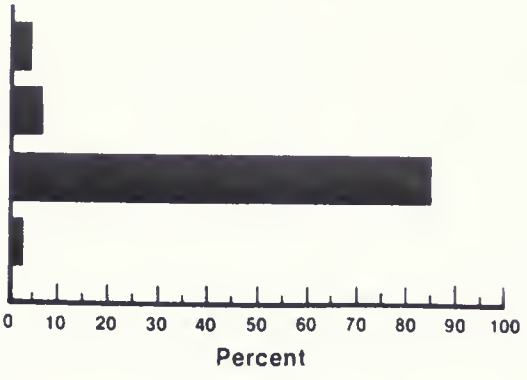
Choice of Answers	Number	Percent
LESS THAN 5	65	18.7
6 TO 9	31	8.9
10 AND MORE	248	71.5
NO RESPONSE	3	.9
	347	100.0



Q-34 Which best describes your current position in your firm?

Responses

Choice of Answers	Number	Percent
PARTNER	16	4.6
OWNER	26	7.5
EMPLOYEE	295	85.0
NO RESPONSE	10	2.9
	347	100.0



APPENDIX B cont'd.

APPRAISERS

1. SUMMARY OF RESULTS

2. QUESTIONNAIRES

3. SURVEY HISTOGRAMS

SUMMARY OF RESULTS

ENERGY OUTREACH SURVEY

APPRAISERS

The appraisers reflected an attitude concerning energy consumption which is similar to that of the lenders. They believe that super insulation and solar heating can reduce energy consumption by at least 25%. The two conservation factors which they think have the greatest impact on home values are standard insulation and multiple-pane windows. Approximately 30% of the appraisers thought that these two measures would have a great effect on property values. Those conservation measures which appraisers indicated would have the least effect on property values included energy-efficient appliances (which are most used by builders) air-to-air heat exchangers, passive solar heating, solar greenhouses (which were most favored by architects), and double envelope construction. All of these conservation measures were rated by less than 10% of the appraisers as having a large effect on increased property values.

The appraisers, like the lenders, indicated a general lack of knowledge concerning utility companies' loan programs. Appraisers also indicated only mild familiarity with current state and federal energy building standards. This, however, did not prevent 56% of of the appraisers from expressing the opinion that these building codes should be left as they are.

Exactly the same proportion of appraisers (56%) as other groups of respondents surveyed endorsed the adoption of a home energy rating system similar to the EPA mileage rating system.

An extremely high proportion of appraisers (98%) have obtained information on conservation and renewable energy from their professional associations and publications. Their secondary energy information source is magazines (82%), closely followed by newspapers (73%).

Approximately one-half of the appraisers have attended a professional meeting or workshop on energy conservation, and over 90% would be willing to attend such a meeting in their area. The appraisers exhibited a strong willingness to pay for the cost of these workshops themselves (53%), while approximately 15% thought the utility companies should pay and a similar percentage felt that these workshops should be the financial responsibility of a government agency.

AL J. FREZZETTE, Real Estate Appraiser & Consultant
Member, ASA, IFAS, CRA
1338 Eleventh Avenue, Helena, Montana 59601

January 5, 1983

Dear Appraiser:

The Montana Department of Natural Resources and Conservation (DNRC) is conducting a survey to assist in targeting its information, education, and outreach activities for renewable energy and energy conservation. Your business has been randomly selected to be part of this survey.

As citizens and taxpayers, I feel each of us has an obligation to assist our government in improving the services it provides to us. I encourage you to take a few minutes to complete the attached questionnaire since, in the end, we all stand to benefit from the improved delivery of government services.

Please accept my personal appreciation for your cooperation with this worthwhile project.

Sincerely,

Al J. Frezzette

Attachment

QUESTIONNAIRES

ENERGY OUTREACH SURVEY
APPRAISERS

INSTRUCTIONS: Please put an "X" in the appropriate box for each question.

Q-1 What percentage of energy consumption on a new home do you think you would save as a result of taking the following measures?

		MORE THAN 25% 1	LESS THAN 25% 2	NONE 3	
1)	SUPER INSULATION, (R-60 + CEILING, R-40 WALLS)	☐	☐	☐	(1)
2)	PASSIVE SOLAR HEATING	☐	☐	☐	(2)
3)	ACTIVE SOLAR HEATING	☐	☐	☐	(3)

Q-2 To what extent do you feel the following building/design techniques, materials, or products increase the property value of homes?

		GREAT DEAL 1	SOMEWHAT 2	NOT AT ALL 3	
1)	INSULATION (R-38 CEILING, R-19 WALLS)	☐	☐	☐	(4)
2)	SUPER INSULATION, (R-60 + CEILING, R-40 WALLS)	☐	☐	☐	(5)
3)	ACTIVE SOLAR HEATING	☐	☐	☐	(6)
4)	PASSIVE SOLAR HEATING	☐	☐	☐	(7)
5)	SOLAR GREENHOUSES/SUN SPACES	☐	☐	☐	(8)
6)	DOUBLE OR TRIPLE PANE WINDOWS	☐	☐	☐	(9)
7)	HIGH EFFICIENCY FURNACES (e.g., PULSE COMBUSTION)	☐	☐	☐	(10)
8)	DOUBLE ENVELOPE CONSTRUCTION	☐	☐	☐	(11)
9)	AIR-TO-AIR HEAT EXCHANGERS	☐	☐	☐	(12)
10)	ENERGY EFFICIENT APPLIANCES	☐	☐	☐	(13)

Q-3 How would you rate your knowledge of the utility companies' loan programs for financing residential energy conservation and renewable energy installations?

1) VERY FAMILIAR ☐1
2) SOMEWHAT FAMILIAR ☐2 (14)
3) NOT FAMILIAR ☐3

Q-4 To what extent do you think the utility companies' loan programs have contributed to residential energy conservation and renewable energy usage?

1) GREAT DEAL ☐1
2) SOMEWHAT ☐2 (15)
3) NOT AT ALL ☐3

Q-5 To what extent are you familiar with current state and federal building standards as they relate to energy conservation and renewable energy installations?

1) VERY FAMILIAR ☐1
2) SOMEWHAT FAMILIAR ☐2 (16)
3) NOT FAMILIAR ☐3

Q-6 Do you think uniform state energy building codes should be

1) STRENGTHENED ☐1
2) LEFT AS IS ☐2 (17)
3) REDUCED ☐3

Q-7 The State of Montana is considering the use of a home energy rating system similar to the EPA car mileage system. Would you support the adoption of such a rating system for new and existing homes?

1) YES ☐1
2) NO ☐2 (18)

Q-8 Have you found information on energy conservation or renewable energy from any of the following sources?

		YES 1	NO 2	
1)	PROFESSIONAL ASSOCIATIONS/ PUBLICATIONS	☐	☐	(19)
2)	TV	☐	☐	(20)
3)	RADIO	☐	☐	(21)
4)	NEWSPAPERS	☐	☐	(22)
5)	MAGAZINES	☐	☐	(23)
6)	ENERGY WORKSHOPS	☐	☐	(24)

Q-9 Which of the following sources do you think could best be used to deliver information on energy conservation and renewable energy?

		VERY HELPFUL 1	SOMEWHAT HELPFUL 2	NOT HELPFUL 3	
1)	PROFESSIONAL ASSOCIATIONS/ PUBLICATIONS	☐	☐	☐	(25)
2)	TV	☐	☐	☐	(26)
3)	RADIO	☐	☐	☐	(27)
4)	NEWSPAPERS	☐	☐	☐	(28)
5)	MAGAZINES	☐	☐	☐	(29)
6)	ENERGY WORKSHOPS	☐	☐	☐	(30)

Q-10 How many workshops or professional meetings dealing with energy conservation or renewable energy have you attended in the past year?

1)	MORE THAN ONE	☐1	
2)	ONE	☐2	(31)
3)	NONE	☐3	

Q-11 Would you be willing to attend workshops related to your profession on energy conservation or renewable energy if they were available in your area?

1)	YES	☐1	
2)	NO	☐2	(32)

Q-12 Who do you feel should pay for these workshops?

1) STATE GOVERNMENT ☐1
2) FEDERAL GOVERNMENT ☐2
3) UTILITY COMPANIES ☐3
4) PARTICIPANTS ☐4

(33)

Q-13 How many employees does your firm employ?

1) LESS THAN 5 ☐1
2) 6 TO 9 ☐2
3) 10 OR MORE ☐3

(34)

Q-14 Which best describes your current position in your firm?

1) PARTNER ☐1
2) OWNER ☐2
3) EMPLOYEE ☐3

(35)

Is there anything else you would like to tell us that would assist us in delivering energy conservation and renewable energy information? If so, please use this space for that purpose.

Your contribution to this effort is greatly appreciated. If you would like a summary of results, please print your name and address on the back of the return envelope (NOT on this questionnaire), and we will mail you a copy.

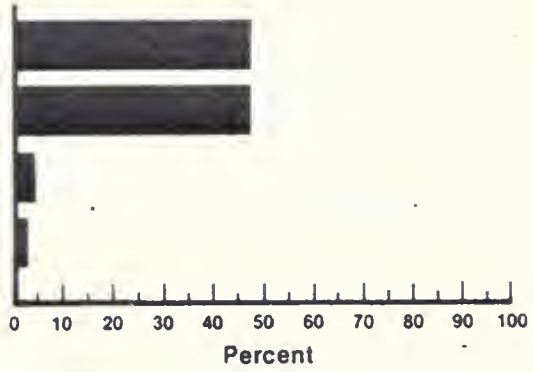
SURVEY HISTOGRAMS

ENERGY OUTREACH SURVEY
APPRAISERS

Q-1 What percentage of energy consumption on a new home do you think you would save as a result of taking the following measure -- super insulation (R-60+ ceiling, R-40 walls)?

Responses

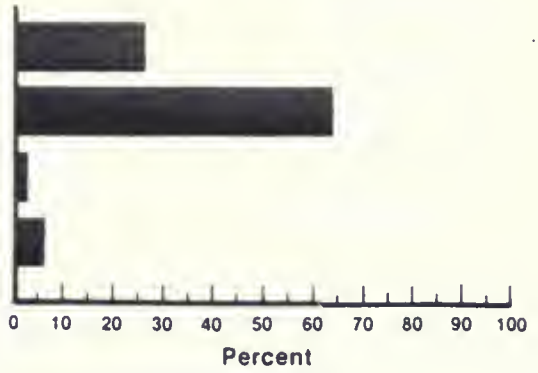
Choice of Answers	Number	Percent
MORE THAN 25%	21	46.7
LESS THAN 25%	21	46.7
NONE	2	4.4
NO RESPONSE	1	2.2
	45	100.0



Q-2 What percentage of energy consumption on a new home do you think you would save as a result of taking the following measure -- passive solar heating?

Responses

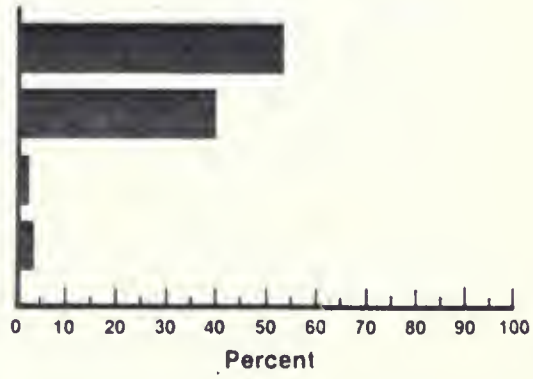
Choice of Answers	Number	Percent
MORE THAN 25%	12	26.7
LESS THAN 25%	29	64.4
NONE	1	2.2
NO RESPONSE	3	6.6
	45	100.0



Q-3 What percentage of energy consumption on a new home do you think you would save as a result of taking the following measure -- active solar heating?

Responses

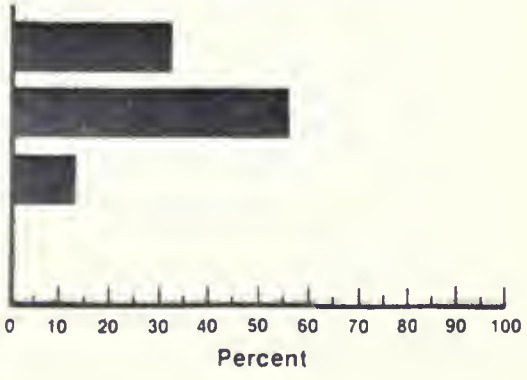
Choice of Answers	Number	Percent
MORE THAN 25%	24	53.3
LESS THAN 25%	18	40.0
NONE	1	2.2
NO RESPONSE	2	4.4
	45	100.0



Q-4 To what extent do you feel the following building/design technique increases the property value of homes -- insulation (R-38 ceiling, R-19 walls)?

Responses

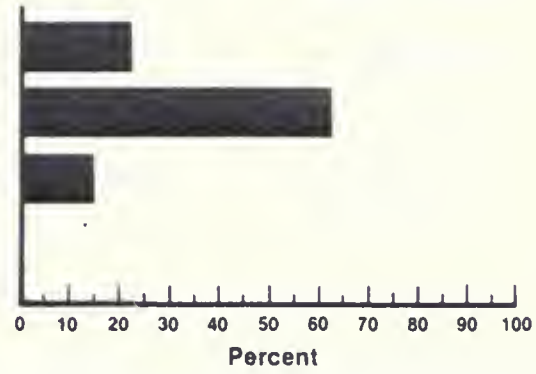
Choice of Answers	Number	Percent
GREAT DEAL	14	31.1
SOMEWHAT	25	55.6
NOT AT ALL	6	13.3
NO RESPONSE	0	0.0
	45	100.0



Q-5 To what extent do you feel the following building/design technique increases the property value of homes -- super insulation (R-60+ ceiling, R-40 walls)?

Responses

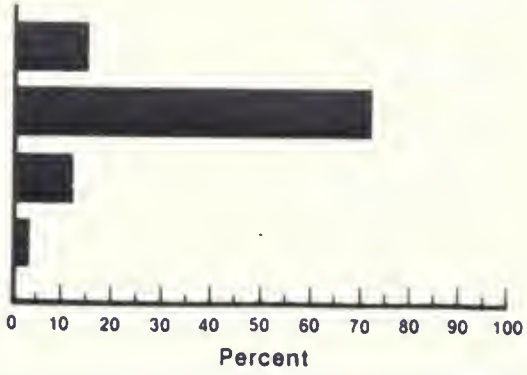
Choice of Answers	Number	Percent
GREAT DEAL	10	22.2
SOMEWHAT	28	62.2
NOT AT ALL	7	15.6
NO RESPONSE	0	0.0
	45	100.0



Q-6 To what extent do you feel the following building/design technique increases the property value of homes -- active solar heating?

Responses

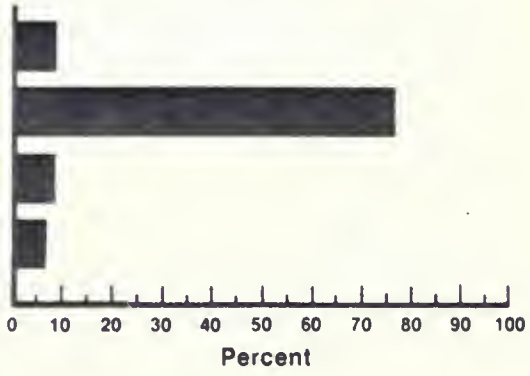
Choice of Answers	Number	Percent
GREAT DEAL	7	15.6
SOMEWHAT	32	71.1
NOT AT ALL	5	11.1
NO RESPONSE	1	2.2
	45	100.0



Q-7 To what extent do you feel the following building/design technique increases the property value of homes -- passive solar heating?

Responses

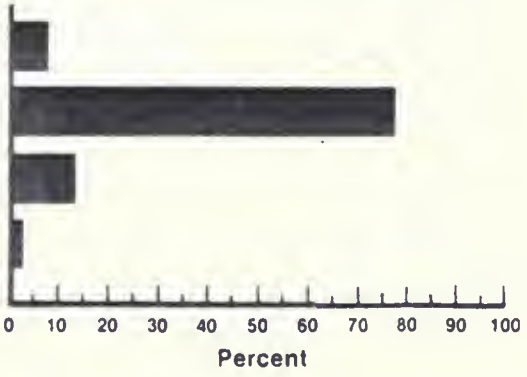
Choice of Answers	Number	Percent
GREAT DEAL	4	8.9
SOMEWHAT	34	75.6
NOT AT ALL	4	8.9
NO RESPONSE	3	6.6
	45	100.0



Q-8 To what extent do you feel the following building/design technique increases the property value of homes -- solar greenhouses/sun spaces?

Responses

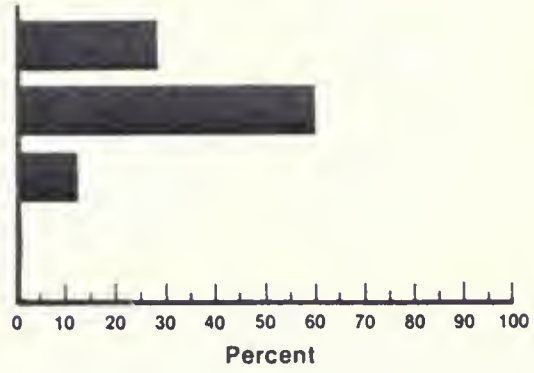
Choice of Answers	Number	Percent
GREAT DEAL	3	6.7
SOMEWHAT	35	77.8
NOT AT ALL	6	13.3
NO RESPONSE	1	2.2
	45	100.0



Q-9 To what extent do you feel the following building/design technique increases the property value of homes -- double or triple pane windows?

Responses

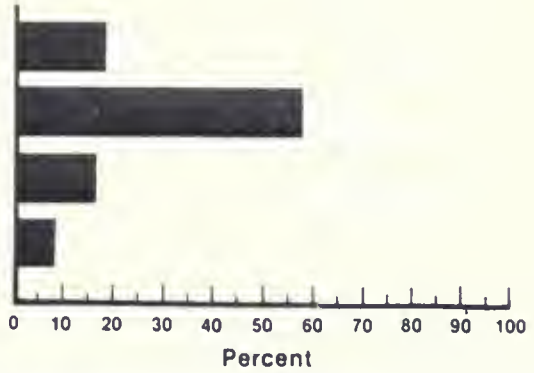
Choice of Answers	Number	Percent
GREAT DEAL	13	28.9
SOMEWHAT	27	60.0
NOT AT ALL	5	11.1
NO RESPONSE	0	0.0
	45	100.0



Q-10 To what extent do you feel the following building/design technique increases the property value of homes -- high efficiency furnaces (e.g., pulse combustion)?

Responses

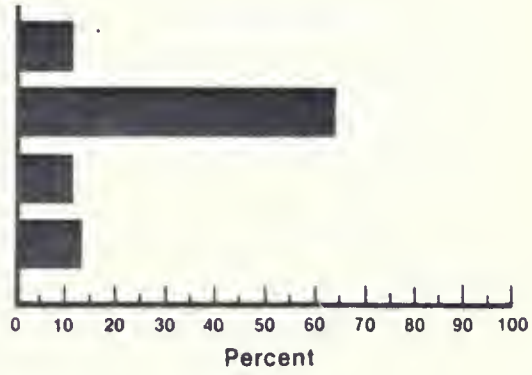
Choice of Answers	Number	Percent
GREAT DEAL	8	17.8
SOMEWHAT	26	57.8
NOT AT ALL	7	15.6
NO RESPONSE	4	8.9
	45	100.0



Q-11 To what extent do you feel the following building/design technique increases the property value of homes -- double envelope construction?

Responses

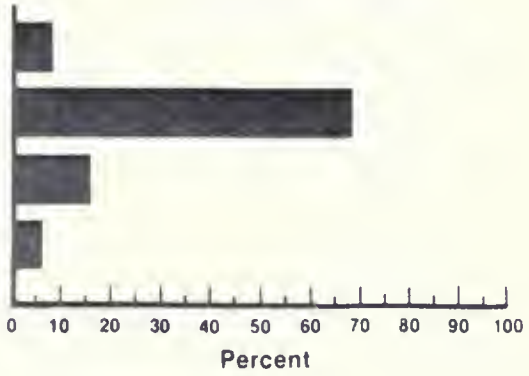
Choice of Answers	Number	Percent
GREAT DEAL	5	11.1
SOMEWHAT	29	64.4
NOT AT ALL	5	11.1
NO RESPONSE	6	13.4
	45	100.0



Q-12 To what extent do you feel the following building/design technique increases the property value of homes -- air-to-air heat exchangers?

Responses

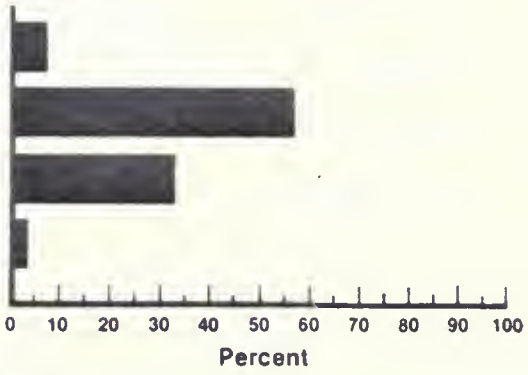
Choice of Answers	Number	Percent
GREAT DEAL	4	8.9
SOMEWHAT	31	68.9
NOT AT ALL	7	15.6
NO RESPONSE	3	6.6
	45	100.0



Q-13 To what extent do you feel the following building/design technique increases the property value of homes -- energy efficient appliances?

Responses

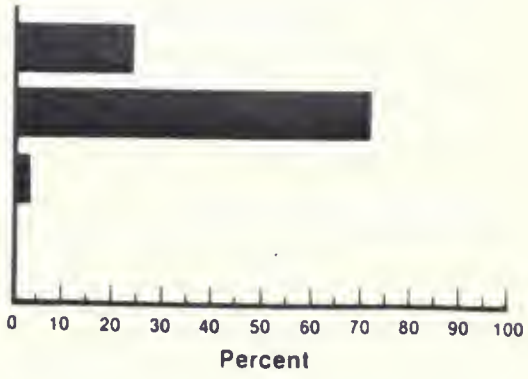
Choice of Answers	Number	Percent
GREAT DEAL	3	6.7
SOMEWHAT	25	55.6
NOT AT ALL	15	33.3
NO RESPONSE	2	4.4
	45	100.0



Q-14 How would you rate your knowledge of the utility companies' loan programs for financing residential energy conservation and renewable energy installations?

Responses

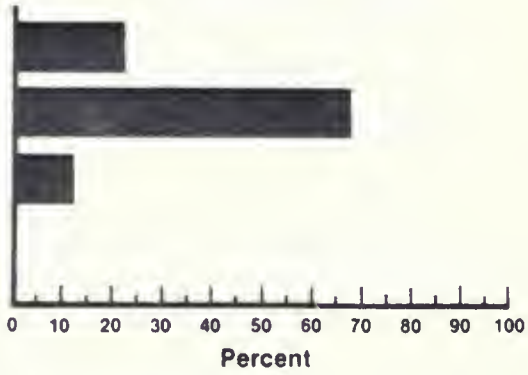
Choice of Answers	Number	Percent
VERY FAMILIAR	11	24.4
SOMEWHAT FAMILIAR	32	71.1
NOT FAMILIAR	2	4.4
NO RESPONSE	0	0.0
	45	100.0



Q-15 To what extent do you think the utility companies' loan programs have contributed to residential energy conservation and renewable energy usage?

Responses

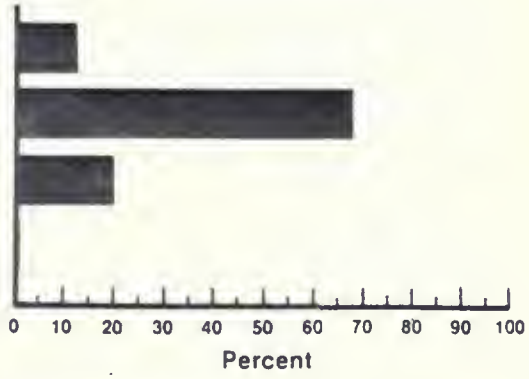
Choice of Answers	Number	Percent
GREAT DEAL	10	22.2
SOMEWHAT	30	66.7
NOT AT ALL	5	11.1
NO RESPONSE	0	0.0
	45	100.0



Q-16 To what extent are you familiar with current state and federal building standards as they relate to energy conservation and renewable energy installations?

Responses

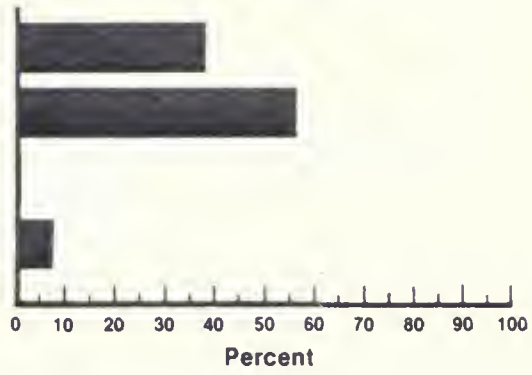
Choice of Answers	Number	Percent
VERY FAMILIAR	6	13.3
SOMEWHAT FAMILIAR	30	66.7
NOT FAMILIAR	9	20.0
NO RESPONSE	0	0.0
	45	100.0



Q-17 Do you think uniform state energy building codes should be

Responses

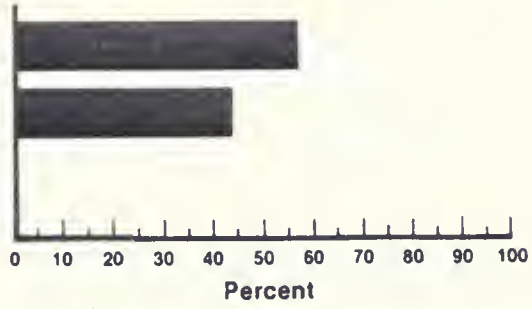
Choice of Answers	Number	Percent
STRENGTHENED	17	37.8
LEFT AS IS	25	55.6
REDUCED	0	0.0
NO RESPONSE	3	6.6
	45	100.0



Q-18 The State of Montana is considering the use of a home energy rating system similar to the EPA car mileage system. Would you support the adoption of such a rating system for new and existing homes?

Responses

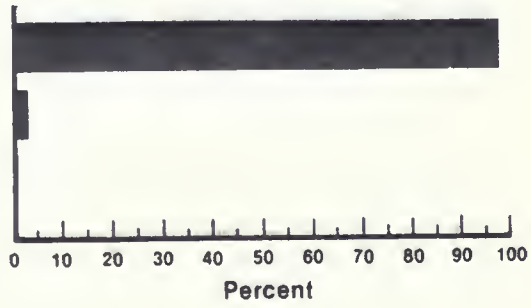
Choice of Answers	Number	Percent
YES	25	55.6
NO	20	44.4
NO RESPONSE	0	0.0
	45	100.0



Q-19 Have you found information on conservation or renewable energy from professional associations/publications?

Responses

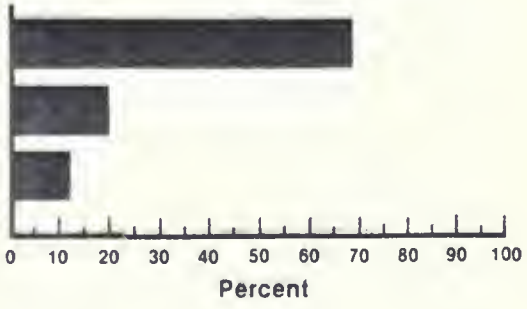
Choice of Answers	Number	Percent
YES	44	97.8
NO	1	2.2
NO RESPONSE	0	0.0
	45	100.0



Q-20 Have you found information on conservation or renewable energy from the television?

Responses

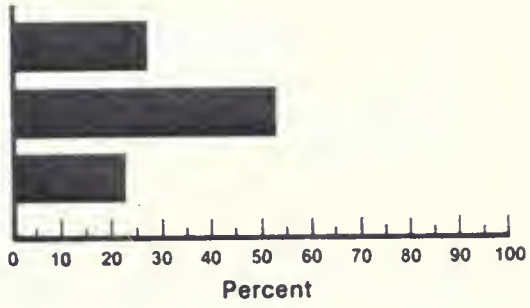
Choice of Answers	Number	Percent
YES	31	68.9
NO	9	20.0
NO RESPONSE	5	11.1
	45	100.0



Q-21 Have you found information on conservation or renewable energy from the radio?

Responses

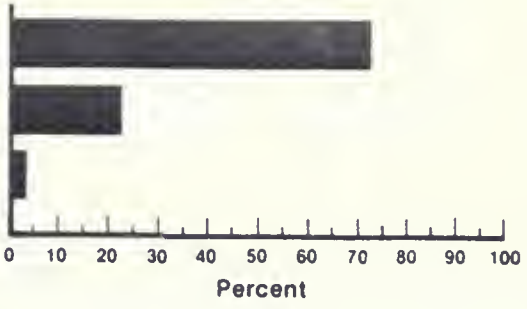
Choice of Answers	Number	Percent
YES	12	26.7
NO	23	51.1
NO RESPONSE	10	22.2
	45	100.0



Q-22 Have you found information on conservation or renewable energy from newspapers?

Responses

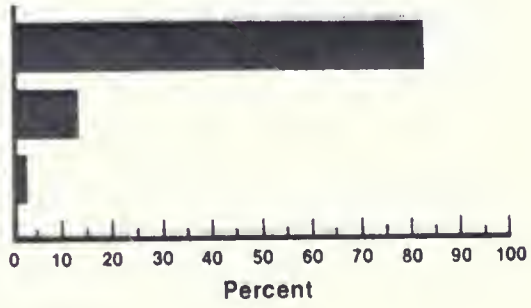
Choice of Answers	Number	Percent
YES	33	73.3
NO	10	22.2
NO RESPONSE	2	4.4
	45	100.0



Q-23 Have you found information on conservation or renewable energy from magazines?

Responses

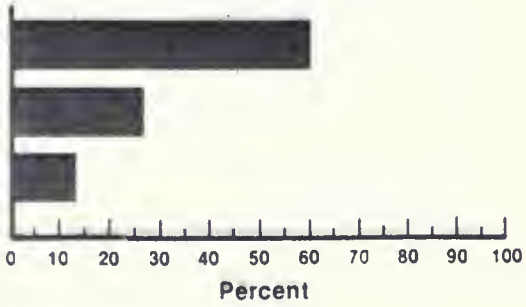
Choice of Answers	Number	Percent
YES	37	82.2
NO	6	13.3
NO RESPONSE	2	4.4
	45	100.0



Q-24 Have you found information on conservation or renewable energy from energy workshops?

Responses

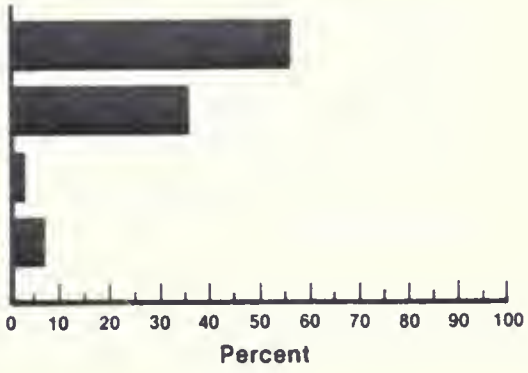
Choice of Answers	Number	Percent
YES	27	60.0
NO	12	26.7
NO RESPONSE	6	13.3
	45	100.0



Q-25 How helpful do you think professional associations/publications are in delivering information on energy conservation and renewable energy?

Responses

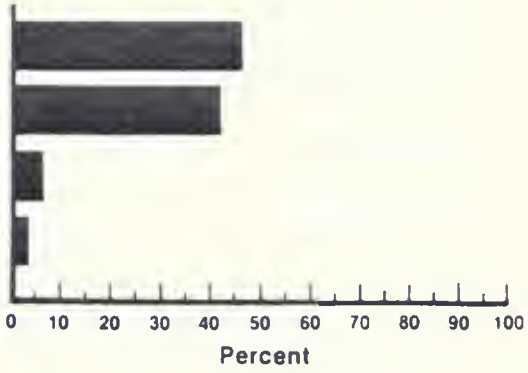
Choice of Answers	Number	Percent
VERY HELPFUL	25	55.6
SOMEWHAT HELPFUL	16	35.6
NOT HELPFUL	1	2.2
NO RESPONSE	3	6.7
	45	100.0



Q-26 How helpful do you think the television is in delivering information on energy conservation and renewable energy?

Responses

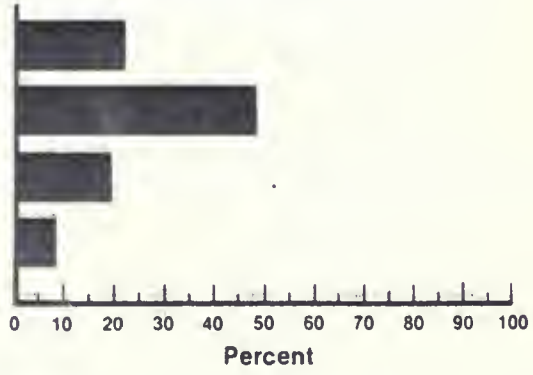
Choice of Answers	Number	Percent
VERY HELPFUL	21	46.7
SOMEWHAT HELPFUL	19	42.2
NOT HELPFUL	3	6.7
NO RESPONSE	2	4.4
	45	100.0



Q-27 How helpful do you think the radio is in delivering information on energy conservation and renewable energy?

Responses

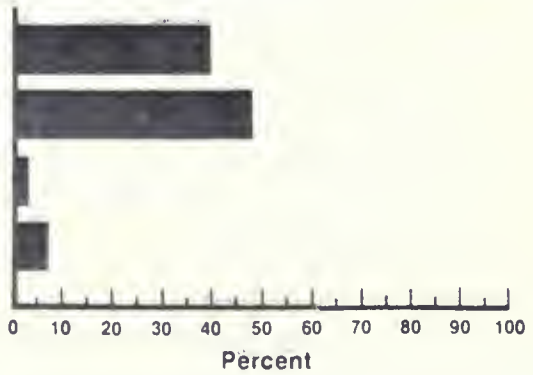
Choice of Answers	Number	Percent
VERY HELPFUL	10	22.2
SOMEWHAT HELPFUL	22	48.9
NOT HELPFUL	9	20.0
NO RESPONSE	4	8.9
	45	100.0



Q-28 How helpful do you think the newspapers are in delivering information on energy conservation and renewable energy?

Responses

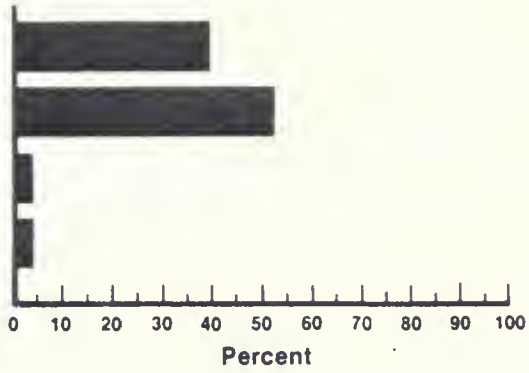
Choice of Answers	Number	Percent
VERY HELPFUL	18	40.0
SOMEWHAT HELPFUL	22	48.9
NOT HELPFUL	2	4.4
NO RESPONSE	3	6.7
	45	100.0



Q-29 How helpful do you think the magazines are in delivering information on energy conservation and renewable energy?

Responses

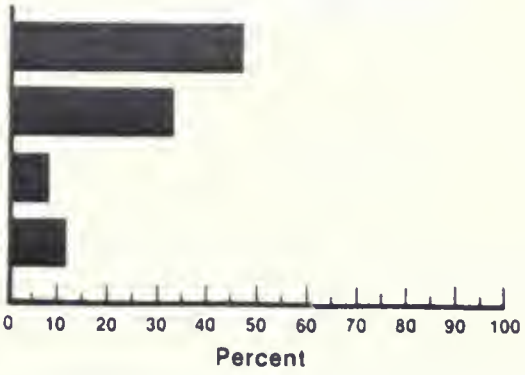
Choice of Answers	Number	Percent
VERY HELPFUL	18	40.0
SOMEWHAT HELPFUL	23	51.1
NOT HELPFUL	2	4.4
NO RESPONSE	2	4.4
	45	100.0



Q-30 How helpful do you think energy workshops are in delivering information on energy conservation and renewable energy?

Responses

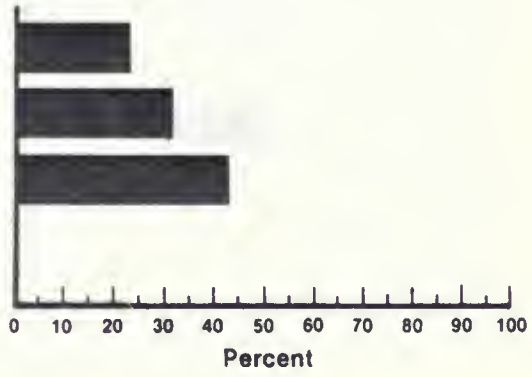
Choice of Answers	Number	Percent
VERY HELPFUL	21	46.7
SOMEWHAT HELPFUL	15	33.3
NOT HELPFUL	4	8.9
NO RESPONSE	5	11.1
	45	100.0



Q-31 How many workshops or professional meetings dealing with energy conservation or renewable energy have you attended in the past year?

Responses

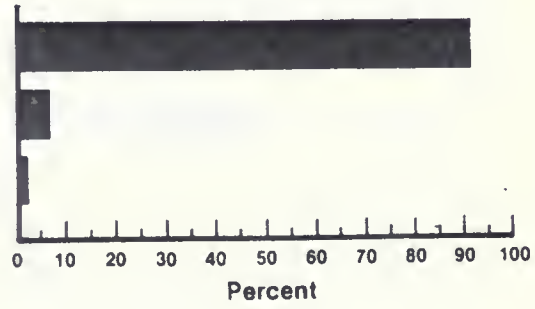
Choice of Answers	Number	Percent
MORE THAN ONE	11	24.4
ONE	14	31.1
NONE	20	44.4
NO RESPONSE	0	0.0
	45	100.0



Q-32 Would you be willing to attend workshops related to your profession on energy conservation or renewable energy if they were available in your area?

Responses

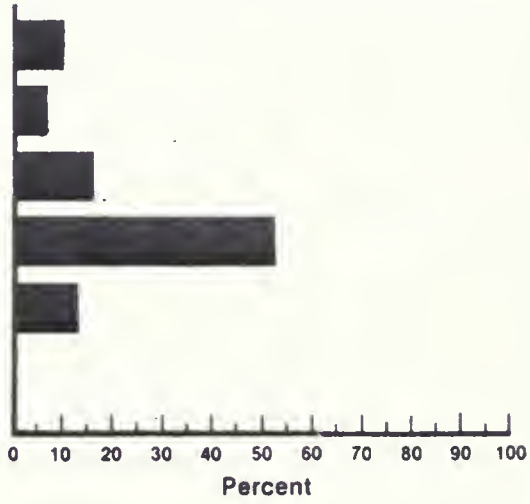
Choice of Answers	Number	Percent
YES	41	91.1
NO	3	6.7
NO RESPONSE	1	2.2
	45	100.0



Q-33 Who do you feel should pay for these workshops?

Responses

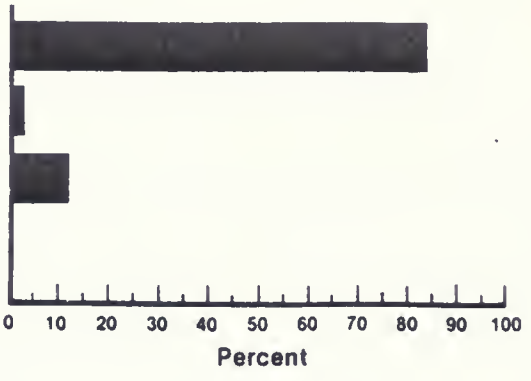
Choice of Answers	Number	Percent
STATE GOVERNMENT	5	11.1
FEDERAL GOVERNMENT	3	6.7
UTILITY COMPANIES	7	15.6
PARTICIPANTS	24	53.3
MULTIPLE RESPONSE	6	13.3
NO RESPONSE	0	0.0
	45	100.0



Q-34 How many employees does your firm employ?

Responses

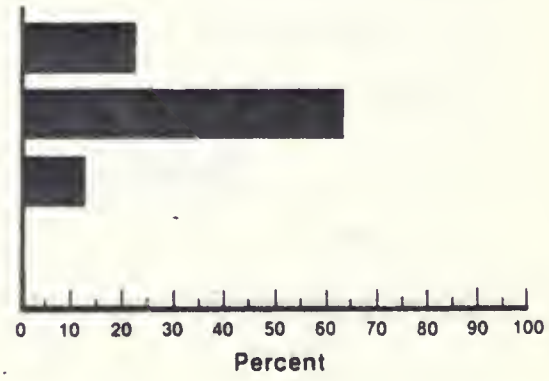
Choice of Answers	Number	Percent
LESS THAN 5	38	84.4
6 TO 9	2	4.4
10 AND MORE	5	11.1
NO RESPONSE	0	0.0
	45	100.0



Q-35 Which best describes your current position in your firm?

Responses

Choice of Answers	Number	Percent
PARTNER	10	22.2
OWNER	29	64.4
EMPLOYEE	6	13.3
NO RESPONSE	0	0.0
	45	100.0



APPENDIX B cont'd.

REALTORS

1. SUMMARY OF RESULTS

2. QUESTIONNAIRES

3. SURVEY HISTOGRAMS

SUMMARY OF RESULTS

ENERGY OUTREACH SURVEY

REALTORS

Realtors exhibited precisely the same feelings concerning the effectiveness of super insulation and solar heating in reducing energy consumption as did lenders and appraisers. Between 50 and 60% of the respondents thought that at least a 25% reduction in energy consumption could be accomplished through these technologies. They also exhibited high confidence (87%) that the use of super insulation increased the salability of homes. A further similarity is that over 60% believed that the use of either passive or active solar heating would increase the salability of homes.

The realtors were similar to the lenders and appraisers in having only a mild familiarity with the utility companies' loan programs and in believing that these programs have been only marginally effective in reducing energy consumption. This same likeness extends to their knowledge of federal and state energy and property tax exemption programs and the effectiveness of these programs in reducing energy use. They are only mildly familiar with the programs and feel that they have been only marginally effective.

Seventy-eight percent of the realtors expressed little or no familiarity with state and federal building standards, nevertheless , 52% expressed the opinion that these building codes should be left as they are.

There is no clear majority of support for a home energy rating system with the realtors. Exactly half supported the idea and 3% did not

respond to this question.

Super insulation and multiple-pane windows were identified as those features which add a great deal to the salability of homes. Those factors which were not perceived as increasing the salability include air-to-air heat exchangers, solar greenhouses, solar heating, double envelope construction, and energy-efficient appliances. As with the appraisers, those factors with which builders and architects found the greatest favor were perceived as having the lesser effect on the salability of the finished product. These sectors of the building industry have not yet achieved greater accord in their promotion and implementation of energy conservation and renewable energy technologies.

Realtors have obtained useful information on energy technology from nearly every source. Over 70% identified professional publications, television, newspapers, and magazines as important sources.

While realtors have thus far attended few energy workshops (65% have attended none at all) 85% indicated a willingness to participate in professional meetings related to energy conservation if held in their area. Forty-eight percent thought the participants should pay for these workshops and 27% indicated it was the utility companies' responsibility to pay for the workshops.

MONTANA
ASSOCIATION
OF REALTORS®

REALTOR®

EXECUTIVE OFFICE
600 NORTH PARK
HELENA, MONTANA 59601
TELEPHONE:
(406) 443-4032

January 5, 1983

Dear Realtor:

The Montana Department of Natural Resources and Conservation (DNRC) is conducting a survey to assist in targeting its information, education, and outreach activities for renewable energy and energy conservation. Your business has been randomly selected to be part of this survey.

As citizens and taxpayers, I feel each of us has an obligation to assist our government in improving the services it provides for us. I encourage you to take a few minutes to complete the attached questionnaire since, in the end, we stand to be the beneficiary of the improved delivery of government services.

Please accept my personal appreciation for your cooperation with this worthwhile project.

Sincerely,

Mimi Parkes

Mimi Parkes
President
Montana Association of Realtors

MP:db

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QUESTIONNAIRES

ENERGY OUTREACH SURVEY
REALTORS

INSTRUCTIONS: Please put an "X" in the appropriate box for each question.

Q-1 What percentage of energy consumption on a new home do you think you would save as a result of taking the following measures?

		MORE THAN 25% 1	LESS THAN 25% 2	NONE 3	
1)	SUPER INSULATION (R-60 + CEILING, R-40 WALLS)	☐	☐	☐	(1)
2)	PASSIVE SOLAR HEATING	☐	☐	☐	(2)
3)	ACTIVE SOLAR HEATING	☐	☐	☐	(3)

Q-2 Do you think the following energy conservation measures increase the salability of a home?

		YES 1	NO 2	
1)	SUPER INSULATION (R-60 + CEILING, R-40 WALLS)	☐	☐	(4)
2)	PASSIVE SOLAR HEATING	☐	☐	(5)
3)	ACTIVE SOLAR HEATING	☐	☐	(6)

Q-3 How would you rate your knowledge of the utility companies' loan programs for financing residential energy conservation and renewable energy installations?

1)	VERY FAMILIAR	☐1	
2)	SOMEWHAT FAMILIAR	☐2	(7)
3)	NOT FAMILIAR	☐3	

Q-4 To what extent do you think the utility companies' loan programs have contributed to residential energy conservation and renewable energy usage?

1)	GREAT DEAL	☐1	
2)	SOMEWHAT	☐2	(8)
3)	NOT AT ALL	☐3	

Q-5 How would you rate your knowledge of the following state and federal residential tax programs to conserve energy?

		VERY FAMILIAR 1	SOMEWHAT FAMILIAR 2	NOT FAMILIAR 3	
1)	FEDERAL ENERGY TAX CREDITS	☐	☐	☐	(9)
2)	STATE ENERGY TAX CREDITS	☐	☐	☐	(10)
3)	STATE PROPERTY TAX EXEMPTIONS	☐	☐	☐	(11)

Q-6 To what extent do you think the following state and federal tax programs have contributed to energy conservation and renewable energy?

		GREAT DEAL 1	SOMEWHAT 2	NOT AT ALL 3	
1)	FEDERAL ENERGY TAX CREDITS	☐	☐	☐	(12)
2)	STATE ENERGY TAX CREDITS	☐	☐	☐	(13)
3)	STATE PROPERTY TAX EXEMPTIONS	☐	☐	☐	(14)

Q-7 To what extent are you familiar with current state and federal (VA/FHA — HUD) building standards as they relate to energy conservation and renewable energy installations?

1)	VERY FAMILIAR	☐1	
2)	SOMEWHAT FAMILIAR	☐2	(15)
3)	NOT FAMILIAR	☐3	

Q-8 Do you think uniform state energy building codes should be

1)	STRENGTHENED	☐1	
2)	LEFT AS IS	☐2	(16)
3)	REDUCED	☐3	

Q-9 The State of Montana is considering the use of a home energy rating system similar to the EPA car mileage system. Would you support the adoption of such a rating system for new homes?

1)	YES	☐1	
2)	NO	☐2	(17)

Q-10 To what extent do you feel the following building/design techniques, materials, or products add to the salability of homes?

		GREAT DEAL 1	SOMEWHAT 2	NOT AT ALL 3	
1)	INSULATION (R-38 CEILING, R-19 WALLS	☐	☐	☐	(18)
2)	SUPER INSULATION (R-60 + CEILING, R-40 WALLS)	☐	☐	☐	(19)
3)	ACTIVE SOLAR HEATING	☐	☐	☐	(20)
4)	PASSIVE SOLAR HEATING	☐	☐	☐	(21)
5)	SOLAR GREENHOUSES/SUN SPACES	☐	☐	☐	(22)
6)	DOUBLE OR TRIPLE PANE WINDOWS	☐	☐	☐	(23)
7)	HIGH EFFICIENCY FURNACES (e.g., PULSE COMBUSTION)	☐	☐	☐	(24)
8)	DOUBLE ENVELOPE CONSTRUCTION	☐	☐	☐	(25)
9)	AIR-TO-AIR HEAT EXCHANGERS	☐	☐	☐	(26)
10)	ENERGY EFFICIENT APPLIANCES	☐	☐	☐	(27)

Q-11 Have you found information on energy conservation or renewable energy from any of the following sources?

		YES 1	NO 2	
1)	PROFESSIONAL ASSOCIATIONS/ PUBLICATIONS	☐	☐	(28)
2)	TV	☐	☐	(29)
3)	RADIO	☐	☐	(30)
4)	NEWSPAPERS	☐	☐	(31)
5)	MAGAZINES	☐	☐	(32)
6)	ENERGY WORKSHOPS	☐	☐	(33)

Q-12 Which of the following sources do you think could best be used to deliver information on energy conservation and renewable energy?

		VERY HELPFUL 1	SOMEWHAT HELPFUL 2	NOT HELPFUL 3	
1)	PROFESSIONAL ASSOCIATIONS/ PUBLICATIONS	☐	☐	☐	(34)
2)	TV	☐	☐	☐	(35)
3)	RADIO	☐	☐	☐	(36)
4)	NEWSPAPERS	☐	☐	☐	(37)
5)	MAGAZINES	☐	☐	☐	(38)
6)	ENERGY WORKSHOPS	☐	☐	☐	(39)

Q-13 How many workshops or professional meetings dealing with energy conservation or renewable energy have you attended in the past year?

1) MORE THAN ONE ☐1
2) ONE ☐2 (40)
3) NONE ☐3

Q-14 Would you be willing to attend workshops related to your profession on energy conservation or renewable energy if they were available in your area?

1) YES ☐1
2) NO ☐2 (41)

Q-15 Who do you feel should pay for these workshops?

1) STATE GOVERNMENT ☐1
2) FEDERAL GOVERNMENT ☐2
3) UTILITY COMPANIES ☐3 (42)
4) PARTICIPANTS ☐4

Q-16 How many employees does your firm employ?

1) LESS THAN 5 ☐1
2) 6 TO 9 ☐2 (43)
3) 10 AND MORE ☐3

Q-17 Which best describes your current position in your firm?

1) PARTNER ☐1

2) OWNER ☐2 (44)

3) EMPLOYEE ☐3

Is there anything else you would like to tell us that would assist us in delivering energy conservation and renewable energy information? If so, please use this space for that purpose.

Your contribution to this effort is greatly appreciated. If you would like a summary of results, please print your name and address on the back of the return envelope (NOT on this questionnaire), and we will mail you a copy.

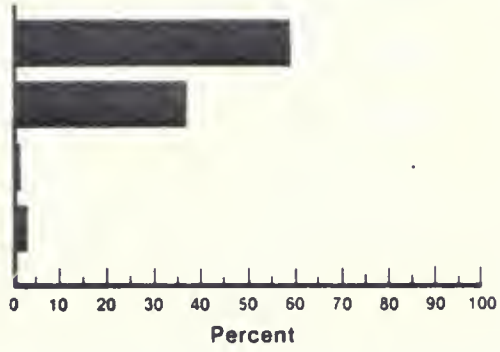
SURVEY HISTOGRAMS

ENERGY OUTREACH SURVEY
REALTORS

Q-1 What percentage of energy consumption on a new home do you think you would save as a result of taking the following measure -- super insulation (R-60+ ceiling, R-40 walls)?

Responses

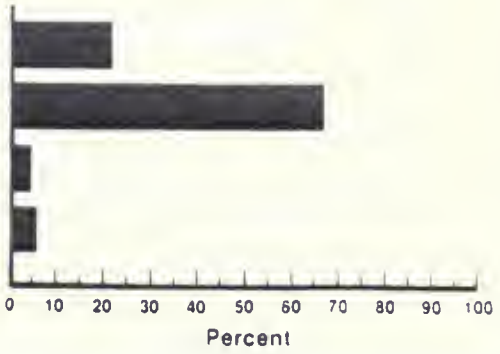
Choice of Answers	Number	Percent
MORE THAN 25%	138	59.2
LESS THAN 25%	86	36.9
NONE	3	1.3
NO RESPONSE	6	2.6
	233	100.0



Q-2 What percentage of energy consumption on a new home do you think you would save as a result of taking the following measure - passive solar heating?

Responses

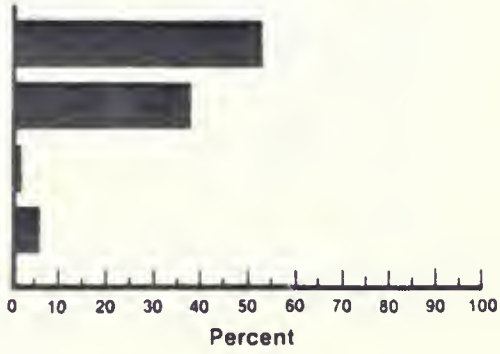
Choice of Answers	Number	Percent
MORE THAN 25%	51	21.9
LESS THAN 25%	156	67.0
NONE	11	4.7
NO RESPONSE	15	6.4
	233	100.0



Q-3 What percentage of energy consumption on a new home do you think you would save as a result of taking the following measure -- active solar heating?

Responses

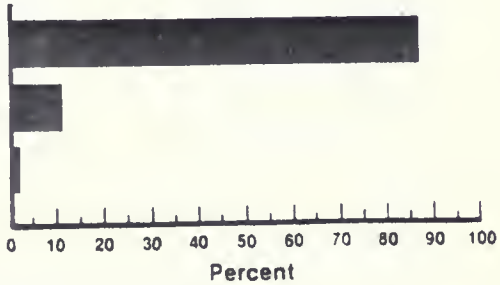
Choice of Answers	Number	Percent
MORE THAN 25%	125	53.6
LESS THAN 25%	90	38.6
NONE	4	1.7
NO RESPONSE	14	6.0
	233	100.0



Q-4 Do you think the following energy conservation measure increases the salability of a home -- super insulation (R-60+ ceiling, R-40 walls?)

Responses

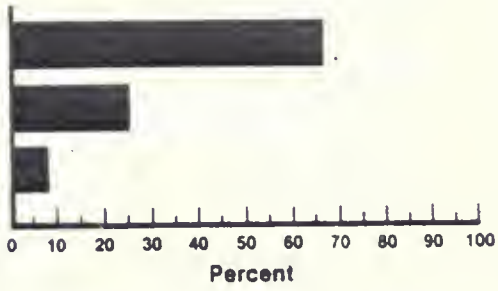
Choice of Answers	Number	Percent
YES	202	86.7
NO	26	11.2
NO RESPONSE	5	2.1
	233	100.0



Q-5 Do you think the following energy conservation measure increases the salability of a home -- passive solar heating?

Responses

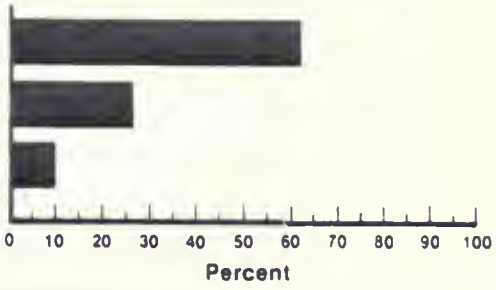
Choice of Answers	Number	Percent
YES	156	67.0
NO	57	24.5
NO RESPONSE	20	8.6
	233	100.0



Q-6 Do you think the following energy conservation measure increases the salability of a home -- active solar heating?

Responses

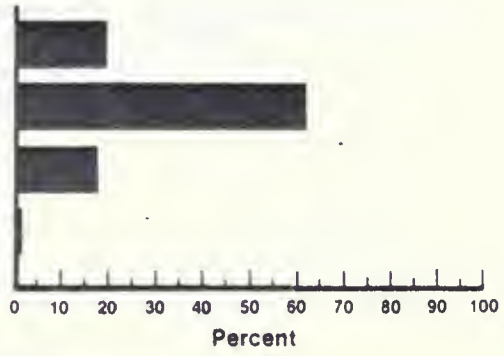
Choice of Answers	Number	Percent
YES	148	63.5
NO	62	26.6
NO RESPONSE	23	9.9
	233	100.0



Q-7 How would you rate your knowledge of the utility companies' loan programs for financing residential energy conservation and renewable energy installations?

Responses

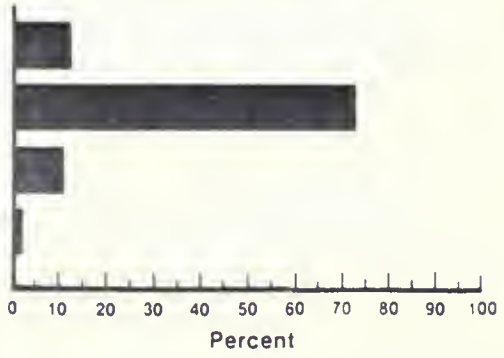
Choice of Answers	Number	Percent
VERY FAMILIAR	46	19.7
SOMEWHAT FAMILIAR	143	61.4
NOT FAMILIAR	42	18.0
NO RESPONSE	2	.9
	233	100.0



Q-8 To what extent do you think the utility companies' loan programs have contributed to residential energy conservation and renewable energy usage?

Responses

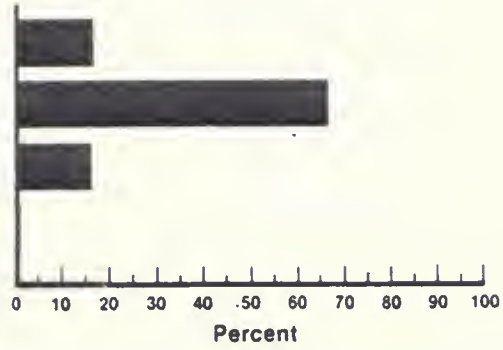
Choice of Answers	Number	Percent
GREAT DEAL	31	13.3
SOMEWHAT	170	73.0
NOT AT ALL	26	11.2
NO RESPONSE	6	2.5
	233	100.0



Q-9 How would you rate your knowledge of the following federal residential tax program to conserve energy -- federal energy tax credits?

Responses

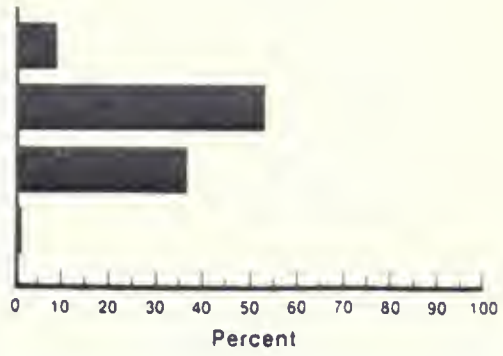
Choice of Answers	Number	Percent
VERY FAMILIAR	40	17.2
SOMEWHAT FAMILIAR	155	66.5
NOT FAMILIAR	38	16.3
NO RESPONSE	0	0.0
	233	100.0



Q-10 How would you rate your knowledge of the following state residential tax program to conserve energy -- state energy tax credits?

Responses

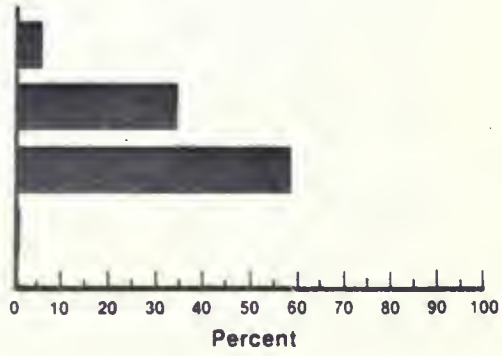
Choice of Answers	Number	Percent
VERY FAMILIAR	22	9.4
SOMEWHAT FAMILIAR	125	53.6
NOT FAMILIAR	84	36.1
NO RESPONSE	2	.9
	233	100.0



Q-11 How would you rate your knowledge of the following state residential tax program to conserve energy -- state property tax exemptions?

Responses

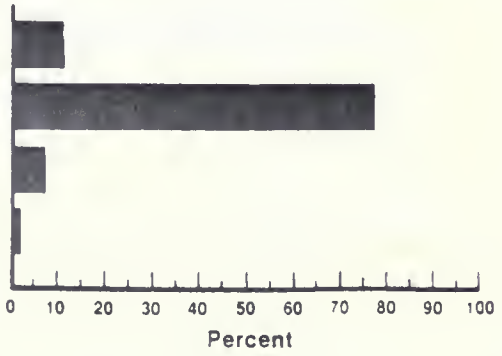
Choice of Answers	Number	Percent
VERY FAMILIAR	14	6.0
SOMEWHAT FAMILIAR	81	34.8
NOT FAMILIAR	137	58.8
NO RESPONSE	1	.4
	233	100.0



Q-12 To what extent do you think the following federal tax program has contributed to energy conservation and renewable energy -- federal energy tax credits?

Responses

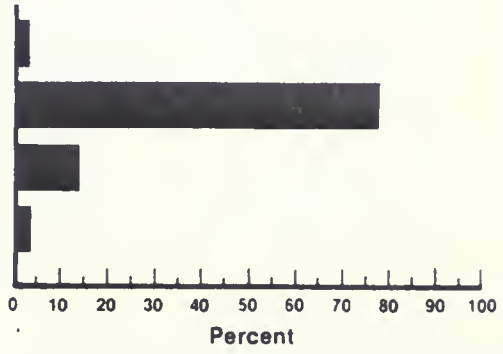
Choice of Answers	Number	Percent
GREAT DEAL	27	11.6
SOMEWHAT	182	78.1
NOT AT ALL	19	8.2
NO RESPONSE	5	2.1
	233	100.0



Q-13 To what extent do you think the following state tax program has contributed to energy conservation and renewable energy -- state energy tax credits?

Responses

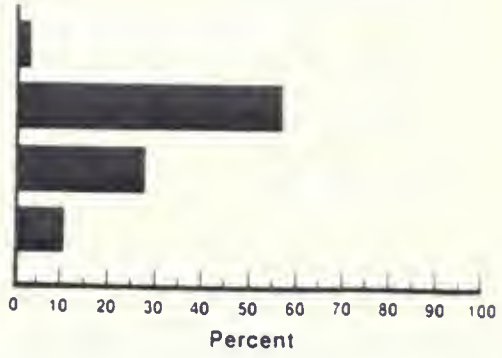
Choice of Answers	Number	Percent
GREAT DEAL	9	3.9
SOMEWHAT	181	77.7
NOT AT ALL	33	14.2
NO RESPONSE	10	4.3
	233	100.0



Q-14 To what extent do you think the following state tax program has contributed to energy conservation and renewable energy -- state property tax exemptions?

Responses

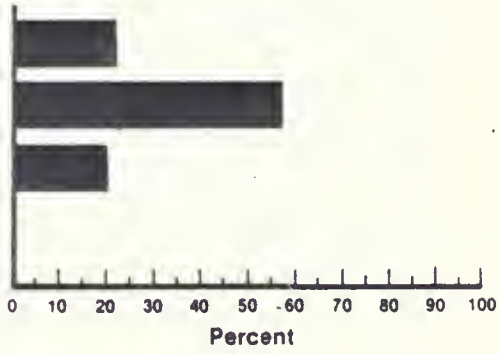
Choice of Answers	Number	Percent
GREAT DEAL	10	4.3
SOMEWHAT	133	57.1
NOT AT ALL	66	28.3
NO RESPONSE	24	10.3
	233	100.0



Q-15 To what extent are you familiar with current state and federal (VA/FHA -- HUD) building standards as they relate to energy conservation and renewable energy installations?

Responses

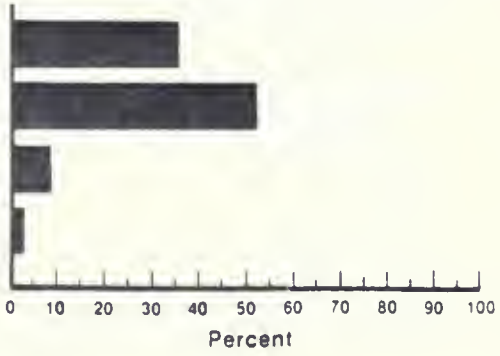
Choice of Answers	Number	Percent
VERY FAMILIAR	53	22.7
SOMEWHAT FAMILIAR	132	56.7
NOT FAMILIAR	48	20.6
NO RESPONSE	0	0.0
	233	100.0



Q-16 Do you think uniform state energy building codes should be

Responses

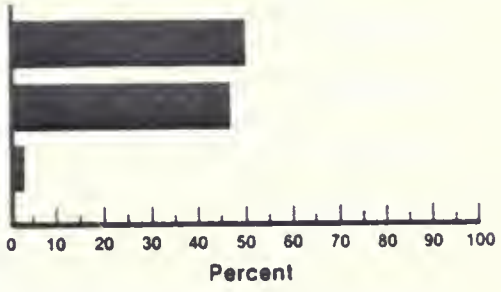
Choice of Answers	Number	Percent
STRENGTHENED	83	35.6
LEFT AS IS	122	52.4
REDUCED	21	9.0
NO RESPONSE	7	3.0
	233	100.0



Q-17 The State of Montana is considering the use of a home energy rating system similar to the EPA car mileage system. Would you support the adoption of such a rating system for new homes?

Responses

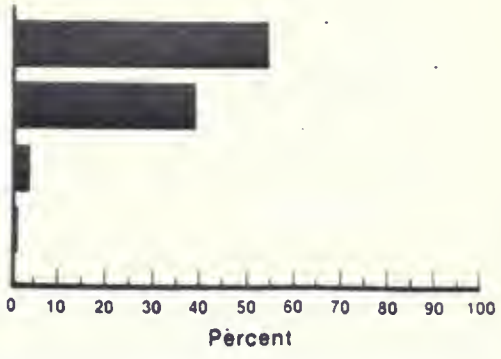
Choice of Answers	Number	Percent
YES	117	50.2
NO	109	46.8
NO RESPONSE	7	3.0
	233	100.0



Q-18 To what extent do you feel the following building/design technique adds to the salability of homes -- insulation (R-38 ceiling, R-19 walls)?

Responses

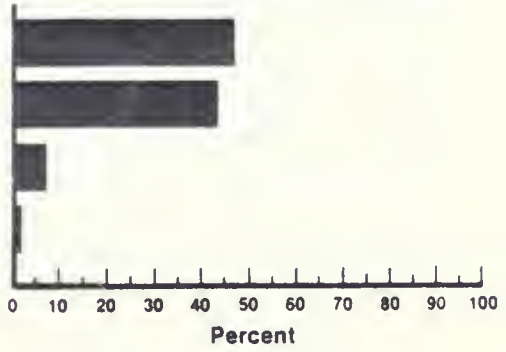
Choice of Answers	Number	Percent
GREAT DEAL	129	55.4
SOMEWHAT	92	39.5
NOT AT ALL	9	3.9
NO RESPONSE	3	1.3
	233	100.0



Q-19 To what extent do you feel the following building/design technique adds to the salability of homes -- super insulation (R-60+ ceiling, R-40 walls)?

Responses

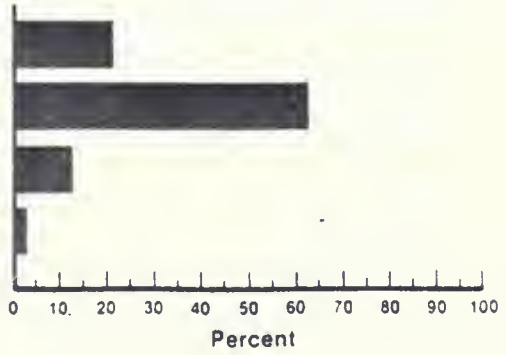
Choice of Answers	Number	Percent
GREAT DEAL	112	48.1
SOMEWHAT	102	43.8
NOT AT ALL	16	6.9
NO RESPONSE	3	1.3
	233	100.0



Q-20 To what extent do you feel the following building/design technique adds to the salability of homes -- active solar heating?

Responses

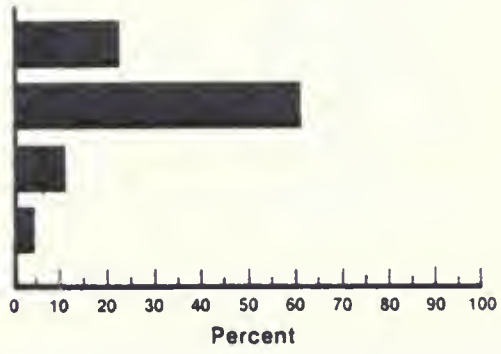
Choice of Answers	Number	Percent
GREAT DEAL	49	21.0
SOMEWHAT	146	62.7
NOT AT ALL	30	12.9
NO RESPONSE	8	3.4
	233	100.0



Q-21 To what extent do you feel the following building/design technique adds to the salability of homes -- passive solar heating?

Responses

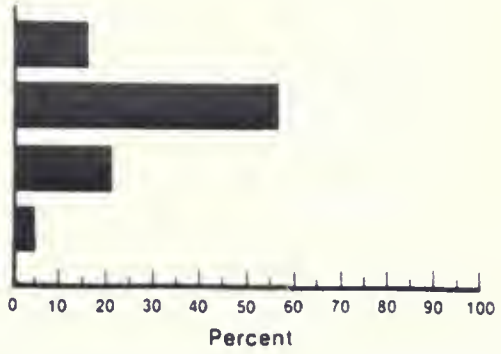
Choice of Answers	Number	Percent
GREAT DEAL	54	23.2
SOMEWHAT	142	60.9
NOT AT ALL	26	11.2
NO RESPONSE	11	4.7
	233	100.0



Q-22 To what extent do you feel the following building/design technique adds to the salability of homes -- solar greenhouses/sun spaces?

Responses

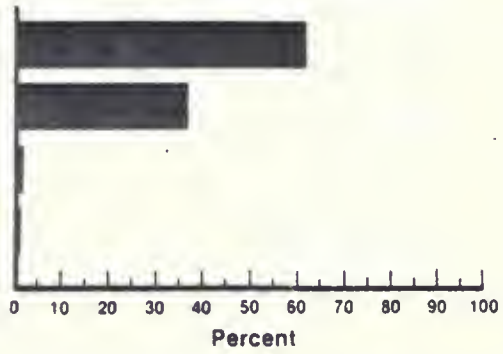
Choice of Answers	Number	Percent
GREAT DEAL	39	16.7
SOMEWHAT	132	56.7
NOT AT ALL	49	21.0
NO RESPONSE	13	5.6
	233	100.0



Q-23 To what extent do you feel the following building/design technique adds to the salability of homes -- double or triple pane windows?

Responses

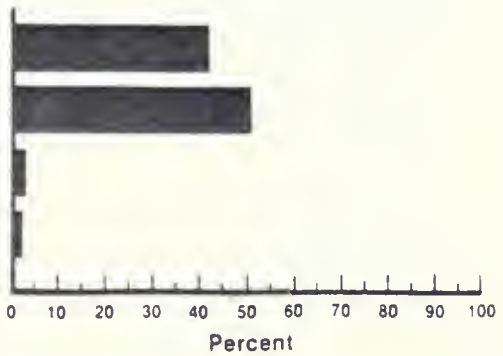
Choice of Answers	Number	Percent
GREAT DEAL	142	60.9
SOMEWHAT	87	37.3
NOT AT ALL	3	1.3
NO RESPONSE	1	.4
	233	100.0



Q-24 To what extent do you feel the following building/design technique adds to the salability of homes -- high efficiency furnaces (e.g., pulse combustion)?

Responses

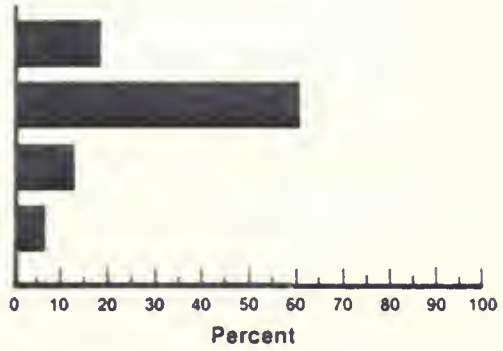
Choice of Answers	Number	Percent
GREAT DEAL	100	42.9
SOMEWHAT	119	51.1
NOT AT ALL	9	3.9
NO RESPONSE	5	2.1
	233	100.0



Q-25 To what extent do you feel the following building/design technique adds to the salability of homes -- double envelope construction?

Responses

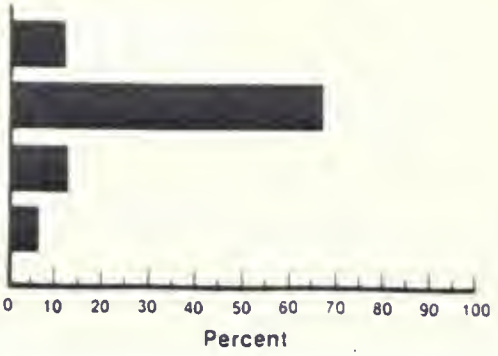
Choice of Answers	Number	Percent
GREAT DEAL	44	18.9
SOMEWHAT	141	60.5
NOT AT ALL	31	13.3
NO RESPONSE	17	7.3
	233	100.0



Q-26 To what extent do you feel the following building/design technique adds to the salability of homes -- air-to-air heat exchangers?

Responses

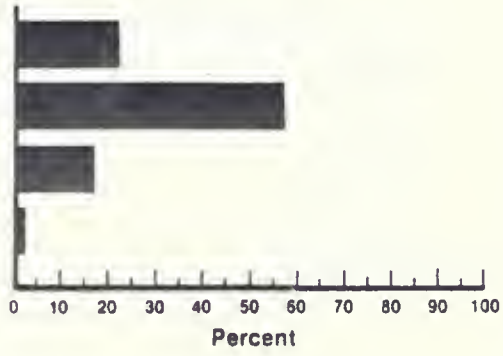
Choice of Answers	Number	Percent
GREAT DEAL	30	12.9
SOMEWHAT	157	67.4
NOT AT ALL	31	13.3
NO RESPONSE	15	6.5
	233	100.0



Q-27 To what extent do you feel the following building/design technique adds to the salability of homes -- energy efficient appliances?

Responses

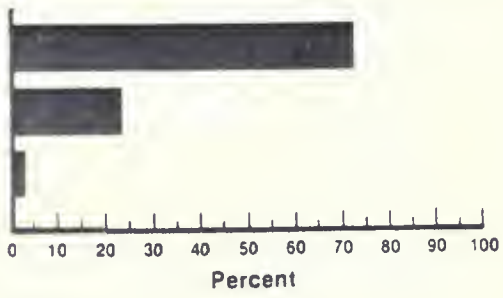
Choice of Answers	Number	Percent
GREAT DEAL	54	23.2
SOMEWHAT	135	57.9
NOT AT ALL	40	17.2
NO RESPONSE	4	1.7
	233	100.0



Q-28 Have you found information on conservation or renewable energy from professional associations/publications?

Responses

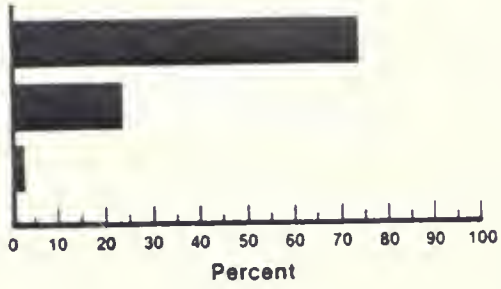
Choice of Answers	Number	Percent
YES	169	72.5
NO	56	24.0
NO RESPONSE	8	3.4
	233	100.0



Q-29 Have you found information on conservation or renewable energy from the TV?

Responses

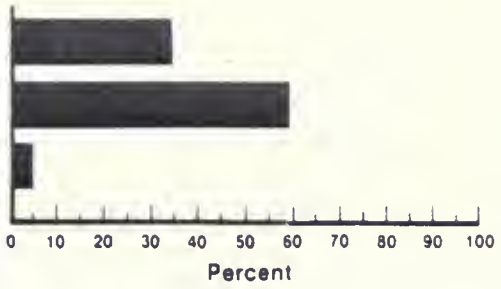
Choice of Answers	Number	Percent
YES	173	74.2
NO	55	23.6
NO RESPONSE	5	2.1
	233	100.0



Q-30 Have you found information on conservation or renewable energy from the radio?

Responses

Choice of Answers	Number	Percent
YES	82	35.2
NO	139	59.7
NO RESPONSE	12	5.2
	233	100.0



Q-31 Have you found information on conservation or renewable energy from newspapers?

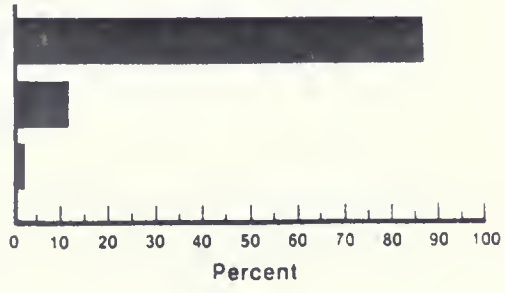
Responses

Choice of Answers	Number	Percent
YES	178	76.4
NO	46	19.7
NO RESPONSE	9	3.9
	233	100.0

Q-32. Have you found information on conservation or renewable energy from magazines?

Responses

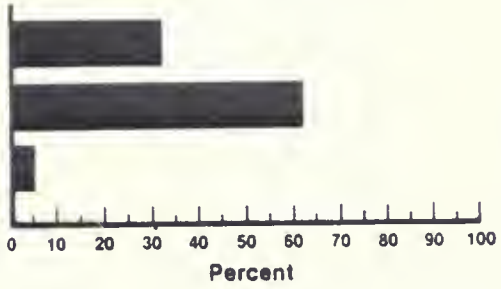
Choice of Answers	Number	Percent
YES	203	87.1
NO	25	10.7
NO RESPONSE	5	2.1
	233	100.0



Q-33 Have you found information on conservation or renewable energy from energy workshops?

Responses

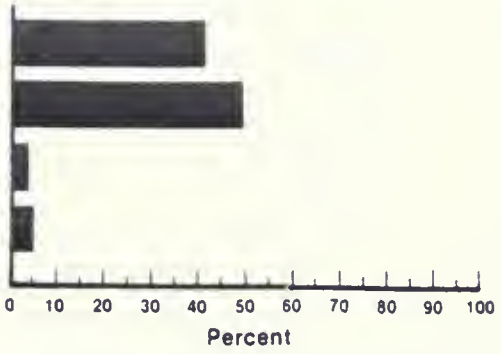
Choice of Answers	Number	Percent
YES	75	32.2
NO	146	62.7
NO RESPONSE	12	5.2
	233	100.0



Q-34 How helpful do you think professional associations/publications are in delivering information on energy conservation and renewable energy?

Responses

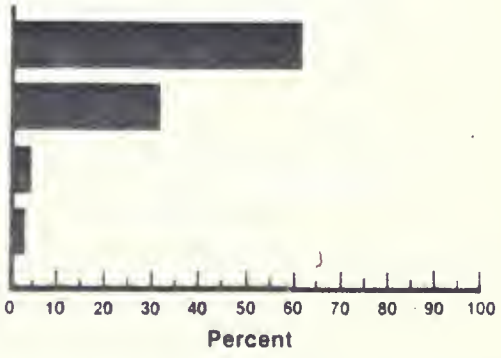
Choice of Answers	Number	Percent
VERY HELPFUL	96	41.2
SOMEWHAT HELPFUL	116	49.8
NOT HELPFUL	9	3.9
NO RESPONSE	12	5.2
	233	100.0



Q-35 How helpful do you think the TV is in delivering information on energy conservation and renewable energy?

Responses

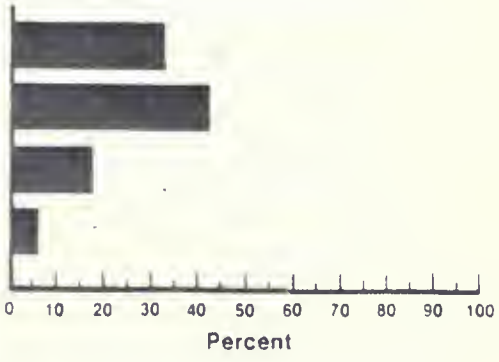
Choice of Answers	Number	Percent
VERY HELPFUL	143	61.4
SOMEWHAT HELPFUL	72	30.9
NOT HELPFUL	11	4:7
NO RESPONSE	7	3.0
	233	100.0



Q-36 How helpful do you think the radio is in delivering information on energy conservation and renewable energy?

Responses

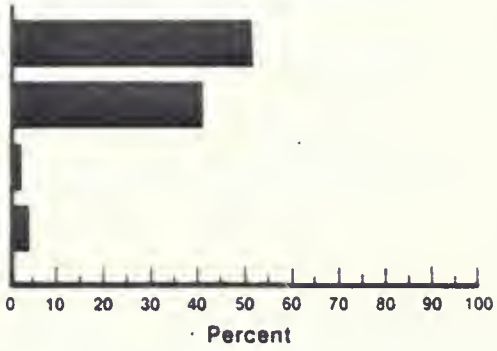
Choice of Answers	Number	Percent
VERY HELPFUL	79	33.9
SOMEWHAT HELPFUL	99	42.5
NOT HELPFUL	42	18.0
NO RESPONSE	13	5.6
	233	100.0



Q-37 How helpful do you think the newspapers are in delivering information on energy conservation and renewable energy?

Responses

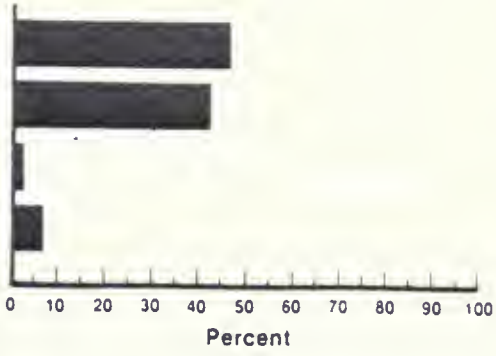
Choice of Answers	Number	Percent
VERY HELPFUL	122	52.4
SOMEWHAT HELPFUL	95	40.8
NOT HELPFUL	6	2.6
NO RESPONSE	10	4.3
	233	100.0



Q-38 How helpful do you think the magazines are in delivering information on energy conservation and renewable energy?

Responses

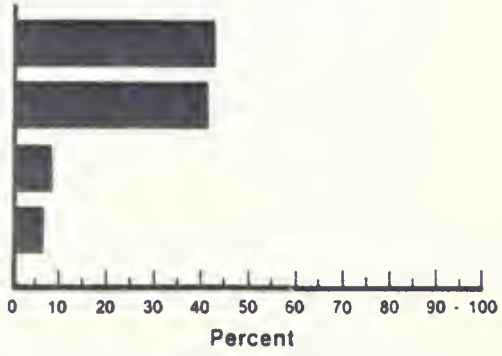
Choice of Answers	Number	Percent
VERY HELPFUL	110	47.2
SOMEWHAT HELPFUL	99	42.5
NOT HELPFUL	8	3.4
NO RESPONSE	16	6.9
	233	100.0



Q-39 How helpful do you think energy workshops are in delivering information on energy conservation and renewable energy?

Responses

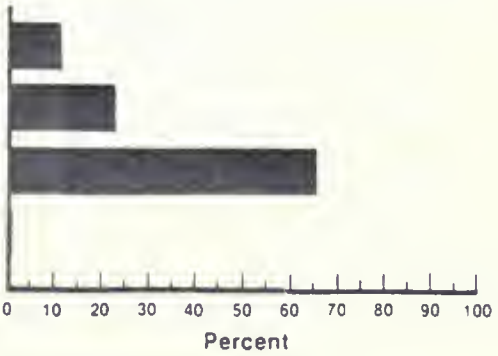
Choice of Answers	Number	Percent
VERY HELPFUL	101	43.3
SOMEWHAT HELPFUL	96	41.2
NOT HELPFUL	21	9.0
NO RESPONSE	15	6.4
	233	100.0



Q-40 How many workshops or professional meetings dealing with energy conservation or renewable energy have you attended in the past year?

Responses

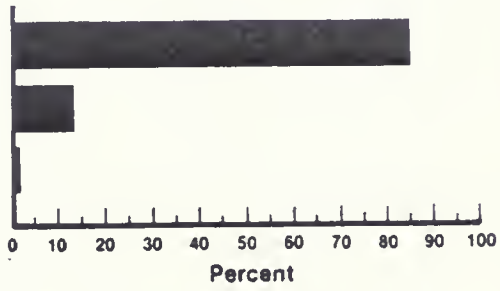
Choice of Answers	Number	Percent
MORE THAN ONE	28	12.0
ONE	52	22.3
NONE	152	65.2
NO RESPONSE	1	.4
	233	100.0



Q-41 Would you be willing to attend workshops related to your profession on energy conservation or renewable energy if they were available in your area?

Responses

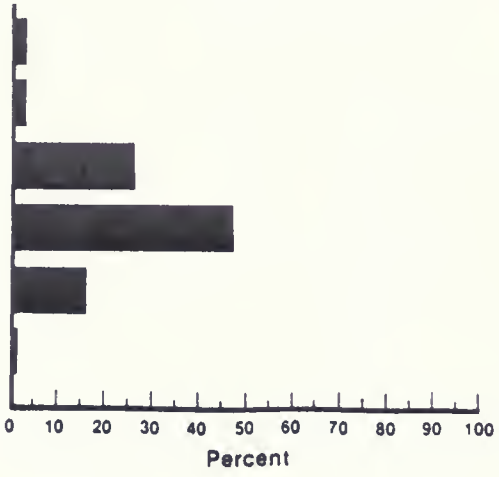
Choice of Answers	Number	Percent
YES	198	85.0
NO	32	13.7
NO RESPONSE	3	1.3
	233	100.0



Q-42 Who do you feel should pay for these workshops?

Responses

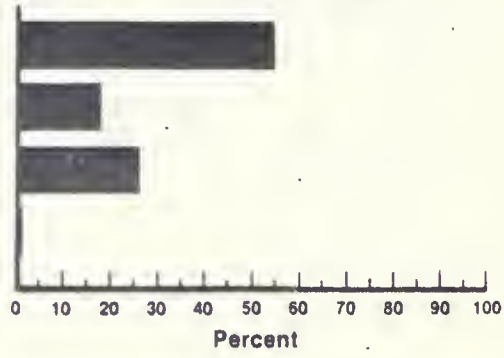
Choice of Answers	Number	Percent
STATE GOVERNMENT	8	3.4
FEDERAL GOVERNMENT	9	3.9
UTILITY COMPANIES	62	26.6
PARTICIPANTS	112	48.1
MULTIPLE RESPONSE	38	16.3
NO RESPONSE	4	1.7
	233	100.0



Q-43 How many employees does your firm employ?

Responses

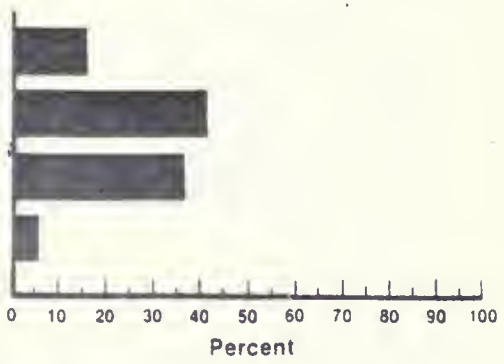
Choice of Answers	Number	Percent
LESS THAN 5	129	55.4
6 TO 9	42	18.0
10 AND MORE	60	25.8
NO RESPONSE	2	.9
	233	100.0



Q-44 Which best describes your current position in your firm?

Responses

Choice of Answers	Number	Percent
PARTNER	37	15.9
OWNER	95	40.8
EMPLOYEE	88	37.8
NO RESPONSE	13	5.6
	233	100.0



APPENDIX C

SAMPLING DEFINITIONS

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Sampling Definitions

Simple Random Sampling

The objective of a sample survey is to make an inference about the population of interest based on information contained in a sample. Two factors affect the quantity of information contained in the sample, and, hence, affect the precision of our inference-making procedure. The first is the size of the sample selected from the population. The second is the amount of variation in the data; this can frequently be controlled by the method of selecting the sample. The procedure for selecting the sample is called the sample survey design. For a fixed sample size, n, we will consider various designs or sampling procedures for obtaining the n observations in the sample. Since observations cost money, a design which provides a precise estimator of the parameter of interest for a fixed sample size yields a savings in cost to the experimenter.

Definition: If a sample of size n is drawn from a population of size N in such a way that every possible sample of size n has the same chance of being selected, the sampling procedure is called simple random sampling.

Systematic Sampling

Definition: A sample obtained by randomly selecting one element from the first k elements in the frame

and every kth element thereafter is called a one-in-k systematic sample.

Systematic sampling provides a useful alternative to simple random sampling for the following reasons:

Systematic sampling is easier to perform and hence is less subject to interviewer errors than simple random sampling.

Systematic sampling often provides greater information per unit cost than does simple random sampling.

In general, systematic sampling involves random selection of one element from the first k elements and then selection of every kth element thereafter. This procedure is easier to perform and usually less subject to interviewer error than is simple random sampling. For example, it would be dificult to use simple random sampling to select a sample of n=50 shoppers on a city street corner. The interviewer could not determine which shoppers to include in his sample because he would not know the population size, N, until all shoppers had passed the corner. In contrast, he could take a systematic sample (say one in 20 shoppers) until the required sample size was obtained. This would be an easy procedure for even an inexperienced interviewer to follow.

In addition to being easier to perform and less subject to interveiwer error, systematic sampling frequently provides more information per unit cost than does simple random sampling. A systematic sample is frequently spread more uniformly over the entire population and thus can provide more information about the population than an equivalent amount of data contained in a simple random sample. Consider the following illustration: We wish to select a one-in-5 systematic sample of travel vouchers from a stack of N=1,000 (that is, sample n=200 vouchers) to determine the proportion of vouchers filed incorrectly. A voucher is drawn at random from the first five vouchers (for example #3), and every fifth voucher thereafter is included in the sample.

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